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MONETARY BUSINESS CYCLE THEORY IN GERMANY

I. GENERAL CONSIDERATIONS

1. INTRODUCTORY

ADOLPH LOEWE, in 1924, commented upon the poverty of the German literature on business cycles, attributing it mainly to the diversion of interest to other, more pressing economic problems.[1] But he continued: "If all signs are not misleading, a change is forthcoming in our discipline in Germany. The growing interest in the problem, which manifests itself in the business sections of the newspapers, in the increasing number of so-called trade barometers in scientific periodicals, in the plans for establishing a German Institute for the study of conjunctures, cannot remain without influence on the science" (p. 333).

Loewe's anticipations have been realized. The Institute for the Study of Conjunctures was established in 1926 and since then has issued a number of regular bulletins and special studies which show a broad and thorough approach based on efficient utilization of past experience of similar foreign institutions. The attention paid to the study of business conditions both by commercial and scientific periodicals has grown, and there have appeared a number of special monographs on business-cycle theory.

[1] "Der Gegenwärtige Stand der Konjunkturforschung in Deutschland," *Festgabe für Lujo Brentano*, II (1925), 329–77.

2. PURPOSE AND SCOPE OF BUSINESS-CYCLE THEORY

The problem of business cycles has been pressed upon economic theory by reality. True, none of the problems in economic theory but was suggested by some significant occurrences in actual life. Nevertheless, some problems, i.e., some factors, were taken into account when the theoretical system was in process of evolving. But the business-cycle problem did not attract much attention until the conspicuous early crises gave place to less exceptional and less spectacular fluctuations of a more pervasive and persistent character.

Its late appearance accounts for a treatment of the whole business-cycle problem as a deviation from the theoretical system. Here was a fact of pressing reality, and one that did not fit within the system of economics as it has evolved. The natural policy for the economic student was to present the theoretical system as it developed through a long process of elaboration and application, and then ask himself: Now, with this system presenting the essential factors and relations, what may be the cause of these fluctuations which experience shows? What is the essential factor which we have omitted from consideration thus far and which may account for the appearance of these fluctuations? The reality which is reflected in the theoretical system is taken for granted, and this system provides the background for the business-cycle phenomenon.

Such an approach tends to disappear as soon as the problem is treated in all the many-sidedness of its actual appearance. The development of inductive studies in recent economics, especially as carried on in the United States, favored a different approach. But in present-day Germany the continuity of the theoretical argument, combined with the recent character of inductive technique in the study of business fluctuations, has helped to preserve the traditional one-sided intellectual policy. In the monographs to be discussed here this type of treatment is present, explicitly or implicitly. Let us quote some of the explicit statements.

Thus Stucken writes:

. . . . The dynamic equilibrium is taken as the starting point for two reasons. Firstly, at any moment it may be derived from the static state, it is thus relatively *familiar* to us in comparison with the fluctuations in economic life. If we succeed in showing how it is that business fluctuations develop in the unfolding of the dynamic equilibrium, we satisfy adequately the need for explanation of the essential points. Secondly, the assumption allows us to study most clearly changes in the price system which are occasioned by a change in the size of one of the factors, for without the influence of this change the prices would remain at their old level.[2]

No less emphatic on the same question of the starting-point, purpose, and scope of business-cycle theory is Hayek:

We can arrive at a satisfactory explanation of complex phenomena only if we first assume that the elementary economic interrelations, as shown in the equilibrium system of pure economics retain their full strength, and then introduce successively, consciously and explicitly the elements whose influence it is that breaks down these rigid interrelations. All the phenomena which are first made possible through this breakdown should then by the rules of theoretical attribution be explained as consequences of that specific element whose addition to the elementary assumptions made possible the inclusion of the phenomena within the bounds of general theory. The frequent practice of substituting for such a theoretical derivation an assertion of a far-going elasticity of the economic system has devastating influence on theory. For any possibility of an exact deduction is completely surrendered and the solution of the problem is made questionable.[3]

Budge, who presents his explanation of business cycles as the last chapter of a book on theory, asks the same question: How is it possible, with price functioning according to the law of supply and demand, for such a phenomenon as business cycles to develop?

Under conditions of free competition, as we know, the market is on one hand dependent upon supply and demand, and on the other, influences supply and demand until the equilibrium state is attained. It is not to be seen how there could develop a disproportionality in the production of goods, which could draw in the whole economic system.

We thus come to the conclusion that such a disproportion can arise only when, at some decisive point, the price structure does not base itself

[2] R. Stucken, *Theorie der Konjunkturschwankungen* (Jena, 1926), pp. 50–51.

[3] F. A. Hayek, *Geldtheorie und Konjunkturtheorie* (Vienna, 1929), pp. 48–49.

upon the play of only free competition, so that some arbitrary influences become possible.[4]

These quotations amply show that most German writers, in common with a number of theoretical economists of other countries, see in business-cycle theory only the elucidation of a single important factor (or of a group of factors) which accounts for cyclical fluctuations as deviations of the complex reality from the simplified reality of their theoretical system.[5] Such an attitude results in the existence of certain peculiar features in their theories.

If business cycles are a result of some complication added to the structure of the economic system as presented in general theory, they are explained if one factor is pointed out which makes these fluctuations possible. There may be a discussion as to whether the factor is great enough to account for so big a phenomenon as business cycles. But once it is shown how the introduction of this factor makes cycles possible, the barest outline of the other accompanying processes provides a satisfactory theory of cyclical fluctuations. There is no attempt at an exhaustive treatment, no attempt to utilize the available inductive data and to present the phenomenon in all the numerous facets of its actual occurrence.

This serves to explain the continued insistence of some business-cycle theorists on an explanation by a single factor. While a demand for such a causal interpretation is to a large extent a survival of the old type of causal methodology, it is strengthened by the conception of the fluctuations as of deviations from a conceived system. It would be a considerable detriment to the whole theoretical system if one were to point out that the variability of its interrelations is due to a considerable number of factors. Hayek suggested in the foregoing quotation that such an assumption would have a deleterious effect on economic theory. Moreover, the drawing in of a number of factors would involve

[4] S. Budge, *Grundzüge der Theoretischen Nationalökonomie* (Jena, 1925), pp. 212–13.

[5] A revealing analysis of this methodological peculiarity of business-cycle theories may be found in a brilliant article by A. Loewe, "Wie ist Konjunkturtheorie überhaupt möglich," *Weltwirtschaftlichesarchiv, October,* 1926, pp. 165–97.

the difficult task of inductive measurement needed to establish the degree to which each of the several factors participate in the total phenomenon known as business fluctuations. Thus, the theoretical approach and the difficulties of treatment combine to make for one-factor hypotheses.

The same approach leads also to a second peculiar thesis—what the German economic writers define as the supremacy of business-cycle theory over business-cycle study. The thesis in question asserts that the inductive, statistical study of cyclical fluctuations cannot by itself enrich our theoretical knowledge of essential interconnections. Business-cycle theory is the basis of any inductive investigations of fluctuations, but can never be the goal of it. Inductive investigations can provide only data for the application of propositions formulated by theory. Even the verification service of inductively gathered data is limited.[6]

One is inclined to think that such an unduly simplified and one-sided attitude toward the relationship between inductive study and theoretical reasoning is a direct outcome of the conception of business cycles as of deviations from essentials described in a general system of economics. For if the purpose of the hypotheses is only to supply a deficiency in the static theory of economics, of course inductive study must be of subordinate significance; because the factors dealt with in economic theory are scarcely susceptible of inductive treatment. If one declares, for example, that the source of cyclical fluctuations is in some peculiarity which is obvious to the naked eye and has no measurable quantitative variations, of what significance can inductive study be to such an argument? The factors which are declared *causes* of cyclical fluctuations are likely to be clearly observable, and the evaluation of them is made mainly in terms of their working out within the interrelations and conditions of the static system. Such a conception of the effects of one factor is not subject to inductive treatment. An inductive study would probably show that the complexity of reality is not exhausted by tracing the influences of this one factor, or even of groups of factors. But the reproach of incompleteness is usually

[6] See especially Hayek's discussion, *op. cit.*, pp. 1–12.

met by reference to the essential character of the "cause" as compared with the other factors.

Knowledge of these features of business-cycle theory in Germany (prevalent also in other countries) is essential to an intelligent survey of the literature. For it helps to explain exaggerations of emphasis and a thinness of treatment which would otherwise discredit these intellectual attempts.

Are these theories, by-products of such a peculiar approach, of value to an investigator who is interested in a realistic treatment of the problem? My answer is yes, because the writers have looked at reality with the purpose of finding essential factors to whose influence they could attribute the cyclical fluctuations. The premises of these discussions, provided by the general static theory, are meant to be a generalization of current economic life. At a distance from close observation of immediate reality, the investigators were free to choose factors that may be omitted in an inductive approach, either for lack of data or for lack of insight. Thus, the theories are valuable as summary statements in regard to certain factors in reality, emphasized in advance of inductive study as probable sources of cyclical fluctuations. It is as a list of such suggestions that these theories are presented here.

I shall confine the presentation to the monetary theories, since this group represents the largest number of realistic variants. The other current hypotheses, which may be classified as underconsumption theories, are usually connected with a definite socialistic theory of surplus value and reserve army of labor, and present considerably less interest to the inductive student.

3. GENERAL CHARACTERISTICS OF MONETARY THEORIES

Monetary theories see the source of business fluctuations in certain peculiarities of economic behavior brought about by the money or banking mechanism. These peculiarities must not be traceable to any factor outside of the money-credit mechanisms themselves. That means money and credit are not mere channels through which some peculiar traits of economic activity

manifest themselves (as in Schumpeter's theory, for example) but are in themselves the source of the actions which initiate cyclical fluctuations. While these specific actions suffice to explain cyclical swings, they are not conceived to be the only factors that go to make up these fluctuations.

Monetary explanations form one of the most persistent types of business-cycle theory, waxing and waning in prominence, but never disappearing. The present period in Germany and elsewhere, probably owing to the vivid monetary experience during the war and post-war years, is one of revival and boom for this particular group. But apart from this obvious connection with recent monetary experience, there is a general basis for currency theories of business cycles, which makes them especially plausible, and which accounts for their constant reappearance in some of their many variant forms.

In dealing with money and credit we are dealing with a commodity which, with rare exceptions, is of uniform quality and of universal use. Any disturbance in the supply of, and demand for, money is a disturbance general in character, while a disturbance in the supply of, and demand for, any other commodity is limited in scope. This difference is important if one holds to the approach described in the foregoing. For the equilibrium system can be expected to manifest pervasive and repeated fluctuations only if it be shown that the disturbance arises in a general, basic factor, rather than in any factor of limited significance.

Moreover, money is produced by a limited and regulated community of economic agents, i.e., by the government and especially by the banks. It is therefore easy to distinguish in the economic activity of the money producers some peculiar traits, whose ultimate consequences would be far-reaching fluctuations of the cyclical type. Any such explanation would also lead almost immediately to a definite policy, for if the source of cyclical fluctuations is localized in the behavior of a controllable body of economic institutions, the remedy seems near at hand. It is easy to see that the all-pervasive importance of money, and the conspicuousness of the small community of its creators,

whose erroneous activity is subject to correction by public regulation, have combined, not only to make monetary business-cycle theory a most persistent type of intellectual attack, but also to endow it with restrictive tendencies which will come out in the discussion following.

II. THE CURRENT VARIANTS

A. VELOCITY OF CIRCULATION

1. *Stucken's theory.*—Stucken's theory is not an explanation of business cycles by a single factor, and there are some doubts as to whether it should be classified as a monetary hypothesis. The original element in it, however, refers to certain peculiarities of the circulation of currency.

Stucken[7] indicates first of all the technical factors important for the development of business cycles: (1) the law of proportionality of returns, applicable to industry as well as agriculture, if we consider the capital equipment in industry as fixed; (2) the duration of the processes of production, counting the period from the time the enterpriser may decide upon an increase of production to the time the finished commodity is ready for the market.

Given these two technical factors, we can understand the main departure of Stucken: if the volume of the circulating mediums expands, production does not increase proportionately. The factors determining the increase in production are substantially different from the factors that make for an increase of the amount of money.

In case the production of money alone increases, prices rise. This rise of prices increases the velocity of circulation of money:

> When the economic agents realize that the price rise has been continued for some time, this realisation influences the tempo at which the use of purchasing media proceeds. The intervals must become shorter, in order to escape as far as possible the anticipated rise of prices. Through this speeding up of the use of means of purchase . . . . there comes an increase in the volume of purchasing media used by buyers within any unit of time—a development which accelerates the price increase.

[7] *Theorie der Konjunkturschwankungen* (1926), pp. 32–41.

Changes in the velocity of circulation become thus an added factor, always to be considered besides the mere change in the volume of circulating mediums. According to Stucken, the effect of these changes in velocity is to exaggerate the influences of the change in monetary volume, in so far as the latter are not counterbalanced by corresponding changes in the volume of production.

There is, however, another crucial point in which the velocity of circulation is of importance. That is when rising prices stop rising, or when declining prices cease falling.

> The absolute decline of purchasing power used per unit of time results not only upon a shift from stable to falling prices, but also upon a shift from rising to stable prices. . . . . For, in the latter case the velocity of circulation declines. This decline in velocity may more than overbalance the otherwise gradual increase in the volume of purchasing media. . . . . In this case there may occur a decline in the volume of purchasing media used per unit of time, even if the decline of interest or of wages does not take place or is not expected . . . . [p. 49].

But if this decline in the velocity of circulation is not caused by any expectation of decline of prices, by what is it caused?

> The cessation of an increase in the volume of purchasing media per unit of time is followed by a decline in the volume of purchasing media per unit of time because savings, which are being withdrawn currently from immediate consumption, do not find any application. . . . . With the cessation of the increase of means of purchase, we have also the disappearance of the situation which has heretofore provoked an increase in the volume of production. Each increase of production involves the consequence: a part of the finished commodities cannot be sold as long as prices stay the same [pp. 51, 53].

Stucken's schematic theory of business cycles is thus a combination of monetary and of production elements. To maintain steady expansion the flow of purchasing power and of production must increase in the same ratio. They do not do so because of the technical factors conditioning production and the absence of similar factors conditioning the supply of currency. Given such a discrepancy, prices rise or decline. The change in price caused by changes in the total volume of purchasing power is accelerated by corresponding changes in the velocity of circulation, induced by the rise or decline in prices. With the devel-

opment of a price rise or a price decline, the mere cessation of the movement is likely to produce changes in velocity which will make for a reversal of the former movement. If prices have been increasing and then become stable, the velocity of circulation declines, since further expansion of production is possible only at increased prices. If prices have been declining and then become stable, the velocity of circulation of money will increase; for, when there is idle industrial equipment, expansion of production is possible without any rise of prices. In both the latter cases the cost possibilities of the expansion of production influence velocity of circulation by determining whether there are any investment possibilities for the currently accumulating savings, or whether they will lie idly in the banks. Moreover, the cessation of a rise or of a decline in the volume of production affects the use of money by wage and salary-earners for durable consumers' goods, and thus affects velocity of circulation.

This is not a complete presentation of Stucken's theory. In his description he utilizes many other factors, such as movement of wages, purchasing power of money, foreign credits and trade, etc.[8] But we are interested only in that phase of his theory which happens to be monetary in character, viz., the velocity of circulation of money.

Stucken considers two possible causes of a change in the velocity of circulation: (1) the expectation of a rise or decline in prices, based upon the immediately preceding movement of prices; (2) the investment possibilities for savings, or incentives for investment in durable consumers' goods. In evaluating the factor of velocity, it is useful to distinguish changes due to these two causes. For in one we have a purely monetary phenomenon, while in the other we have a reflection of conditions in the productive system at large.

2. *Bortkiewicz's analysis.*—Velocity of circulation may be best defined in the present discussion as the ratio of money outflow to monetary stock. If prices rise, it seems plausible that the

[8] See a good summary in an article by F. Burchardt, "Entwickelungsgeschichte der monetären Konjunkturtheorie," *Weltwirtschaftlichesarchiv*, July, 1928, pp. 77–143.

velocity of circulation will increase, because people try to get rid of their money as quickly as possible and tend to keep smaller stocks on hand. This statement at first seems plausible. But if we take a certain period of time, the stock of money reserves for future use will be smaller, and the outflow of money will also be smaller, in the latter part of the period. On the other hand, the recipients of the quickly spent money may hold it until they can return it again to the spenders. If we thus take the full period of time through which the present and the future money (i.e., the whole stock of money available for the period) is to be used, the velocity of circulation for the economic system as a whole is not likely to be affected by changes in the promptness with which people spend.

This contention is the gist of a penetrating paper by L. Bortkiewicz, delivered at the congress of the Verein für Sozialpolitik in 1925.[9] Suppose, says Bortkiewicz, that a worker gets a wage of $600 for a quarter of the year, and that he spends it on commodities that are produced by the employer. If he spends it in equal instalments through the quarter, he spends $200 a month, and has the following stock of money at his disposal: end of first month, $400; second, $200; third, zero. The average velocity of circulation for the quarter is then for him $600 divided by the average stock of money—$200, which is 3. Now, his employer has the following stock of money: $200 at the end of the first month; $400 at the end of the second month; $600 at the end of the last month. But through that time he pays out $600. His average stock is $400. The ratio for him is then 1.5.[10]

Now change the speed with which the worker spends his money. Suppose that he spends all the money during the first two months. He has then: at the end of the first month, $300; at the end of the second, zero; at the end of the third, zero. His average stocks during the quarter are $100, and his velocity jumps to 6. So far this justifies Stucken's contention. But what happened to the velocity of circulation of the employer's money?

[9] See *Schriften*, CLXX, 256–74.

[10] I am not using the exact figures given by Bortkiewicz, but the gist of the example is the same.

He now has, at the end of the first month, $300; at the end of the second, $600; at the end of the third, $600. His average stock now is $500, and the velocity declines to 1.2.

But observe the change in the velocity of circulation in the system as a whole: during the first period, there were average stocks of money in the hands of the workers, $200; in the hands of the employers, $400; together, $600. The velocity was then 1,200 divided by 600, or 2. During the second period the average stocks of the worker were 100, of the employer 500. Together the average stocks were 600, and therefore the velocity for the system as a whole remained 2. Thus, in spite of the fact that the workers spend their money with greater speed, the velocity of circulation for the national system as a whole remained the same, because with the increased velocity of money for the workers there came a diminished velocity for the employers.

3. *Conditions of a change in general velocity of circulation.* —*The first round:* This discussion indicates that changes in velocity of circulation as a factor determining changes in prices (alongside the volume of currency) are conditioned by two qualifications: (1) It must be inquired whether the greater promptness in spending money is general, i.e., whether the promptness of spending in one part of the system is not counterbalanced by larger stocks of money in the other part of the system. It is obvious that on this depends the generality of the change in prices. (2) It must be indicated whether during the period of time for which velocity is computed, the faster spending during the early part of the period is not followed by a slower rate of outflow later on. This is obviously of importance to the persistence of price rise. Let us discuss these two qualifications in greater detail.

If at a certain point in the economic system there occurs an increase in the outflow of money, with smaller (or the same) stocks of money kept, then there are three possible modes of disposition of this money by the recipients: (1) The sellers of the commodities who received the larger amount of money, keep part of it, not passing on further the net increase. (2) They pass their current receipts on farther, i.e., offer them in exchange for other commodities. (3) They not only do that,

but, sharing the view that prices are going to rise, withdraw some of their own funds of money and pass them on together with the larger amount received for their own goods. In the first case, the general velocity of circulation (and general prices) will remain the same as before. In the second, the velocity of circulation will be raised but a little, because the addition to the amount of money in active circulation and the diminution in the amount of idle monetary stocks has been confined to but a part of the economic system. In the third case, the rise in velocity and in prices will be quite appreciable.

Velocity of circulation is, however, a characteristic which applies, not to a given moment of time, but to a certain period of time. The question arises: What happens after this initial, unusually large outflow of purchasing power? Here we encounter Bortkiewicz's point concerning the persistence of a change in the ratio of monetary outflow to monetary stocks.

Suppose that after the first round of transactions in which the increased outflow of money has worked itself out by raising prices, the final recipients of money may still expect that prices will continue to rise. They will then be tempted to spend again a larger amount of their money holdings for present goods. If we suppose that in the first round the transactions have completed their circuit, then all the spenders of money who originated the larger outflow of purchasing mediums have received back the increased amount of money which they spent. Three cases are then possible: (1) Upon receiving back their increased expenditures, these individuals will not be ready to spend as much again. Then the prices which have risen will tend to recede. (2) The individuals will be ready to spend again the full amount of their increased expenditures. Prices once increased will remain on their high level. (3) The individuals will be ready to spend, not only the amount which has come back to them, but more, by drawing further upon their stocks of money. This will result in a further increase of prices.

This reasoning seems obvious at first. But it should be noted that in the process we have introduced an additional assumption: viz., that the flow of money back to the original spenders

becomes faster than before to such an extent that the depletion of monetary stocks does not have time to exercise its lowering influence on prices. If some "future" money is spent in the current present, we can avoid trouble only under two suppositions: (1) that stocks of money can be lowered for some time without causing a decline in demand, i.e., that there are permanently idle moneys in the economic system; (2) that the money returns to the original spenders within a period shorter than the ordinary, so that the time span which was to be subsidized out of monetary stocks becomes shorter. It is clear that if neither of these assumptions is true, there will be a shortage of means of purchasing power toward the end of the period, caused by the larger outflow of money at the beginning.

This change in either rapidity of the back flow of money or the amount of idle monetary stocks should be sufficient, not only to replenish the amount withdrawn at the beginning of the period, but also to increase the remainder to an extent sufficient to finance the rise of prices which has already occurred. For, if a certain stock of money, which was earmarked for the purchase of a certain number of commodities within a given period, has been spent rapidly at the start of this period, with a consequent rise in prices, then in order that the individuals should be able to buy at the end of the period the same amount of commodities that they planned to buy, they should not only make up the withdrawal of funds from future to the present use, but should augment their funds toward the end of the period in accordance with the rise of prices that has already taken place.

The return flow: That the money will flow back within a shorter time span seems at first an obvious deduction from the general character of the speeding up in the outflow of money. If everyone spends money faster, then everybody gets the money back faster. This proposition becomes less obvious when we realize that money has to come back to the original spenders, to the full amount which was originally spent. But such a balance of original outgo and of the back flow is highly improbable, since the faster back flow is dependent on an increase in the velocity of circulation of commodities. This connection be-

tween the circuit flow of money and the circuit flow of goods, usually omitted from consideration, accounts for the fact that a general rise in the outflow of money does not *eo ipso* mean a faster inflow of money into the old channels.

Quicker back flow of money is possible only if either the exchange transactions become more numerous or if goods are produced at a greater rate. For example, if a producer has spent his money more quickly than before, and bought a number of commodities, he can expect a quicker return of the money than usual only if he sells the commodities within a shorter time than before. This may be done in either of the two ways mentioned: (1) He may resell the same commodities without changing them, and in such a case the commodity will go through a larger number of transactions. This is, however, improbable since he needed the commodities at the time he bought them. (2) He may speed up the production process for which he buys the commodities and thus sell the finished product within a shorter period (after the purchase of raw materials) than usual.

Thus a general rise in the rate of outflow of money results in a generally faster return of the money flow to the sources from which it was spent only if the economic agents are able to accelerate their resale of the commodities which they acquired. To such an acceleration of the circulation of commodities there are definite limits which we can list here briefly: (1) Neither of the two mentioned ways of increasing the velocity of circulation of commodities is available to that large part of the economic system which retains no right to the produced commodity, but receives periodically only a certain, slowly changing volume of money, i.e., to wage- and salary-earners. (2) The shortening of the period of production, while quite feasible at certain stages of the cycle, has definite limits beyond which it cannot go under the conditions of the same fixed capital. And any addition to fixed capital takes time, so that the circulation of commodities and consequently circulation of money is retarded. (3) The increase in the number of transactions through which a commodity passes assumes a speculative type of activity on the part of at least the sellers. It is only if the commodi-

ties were purchased at first (with an increased amount of money) for "a rise" that there will be a tendency to sell them again, without utilizing them. Such speculative activity is quite feasible in the higher branches of the distributive trades, although it is limited there by the technical conditions of the transfer of commodities. It is most feasible in such purely speculative markets as the stock market or the produce exchanges.

Since the back flow of money is thus conditioned by the flow of goods, all the numerous technical and social differences among the commodity flow processes in the various branches of economic activity come into play. As a consequence, a number of these branches cannot maintain, by means of a faster back flow, an increase in the outflow of their expenses which has already occurred. In these branches a new supply of money is needed, in order that the increased velocity be kept up or further increased. In other branches the return flow of money will be not only as large as the former large outflow, but will be still larger.

We see thus that aside from a further supply of money, i.e., a transfer of either actual or potential money from "resting" stocks into active circulation, a higher velocity of circulation of money can be kept up only by a higher velocity of circulation of commodities. But if such is the case, what about the influence of a higher velocity of circulation of money on prices? Do we not have here a proportionately equal increase on both sides of the exchange equation, so that prices will not rise, despite the increased velocity of circulation of money?

This is undeniably so. As long as there is no change in the amount of money in active circulation, the faster back flow of money which is made possible by a faster flow of goods will not raise prices, but only tend to keep them at the once established level. And if in actual experience rising prices and an increased velocity of circulation usually go together, it is owing not to the increased velocity of circulation by itself, but to the fact that such increase takes place through an increase in the volume of money in active circulation.

What usually happens is an interaction in time. First, prices

increase as a result of the initial faster outflow of money. Then, under the pressure of higher prices the economic agents try to raise the circulation of commodities, i.e., either to produce goods faster or to turn them over at shorter intervals. This is possible only at increased costs, unless we assume conditions of idle capital equipment and large supply of labor, an assumption which implies the taking of a certain cyclical phase for granted. Likewise, the increase in the number of hands through which a commodity passes (a result of faster selling and buying) helps to drive the price up, if this trading is done, as it is supposed to be done, under the pressure of an expected price increase. As a result, in order to keep up the old volume of commodity buying, selling, and producing and to expand it in accordance with the pressing incentive of rising prices, the economic agents are forced continually to use, not only the augmented amount that may flow to them in the form of a back flow, but also additional stocks of money. Where they get them is another question. But through this whole process of increased velocity of circulation of money, increased velocity of goods, another increase in the velocity of money, the price-raising factor is not that change in velocity of money circulation which is achieved through a rise in the velocity of commodities, but the one which is achieved through the infusion of additional stocks of money into active circulation.

On the contrary, a rise in the velocity of circulation of commodities serves as a check upon an inordinate rise of prices that would have occurred otherwise. One has to look at the actual experience of some of the phases of acute cyclical fluctuations in order to see how any threat of a sharp retardation in the velocity of circulation of commodities, such as may result from a railroad tie-up or an overburdened industrial system, has a catastrophic effect on prices; how prices then rise to the full extent which is allowed by a sudden general concentration of means of purchase upon a reduced or constant flow of goods.

We see then that, *as a factor accounting for a rise or decline of prices,* change in the velocity of circulation of money can be accepted only as a result of change in the disposition of mone-

tary stocks. We have to assume that there are idle stocks of money, which would not otherwise have entered the channels of circulation for some time, and that these stocks of money are drawn upon continuously to augment the amount of money in active circulation.

The stocks of money: How important are such stocks? According to Burchardt,[11] they cannot be of any importance:

> If we divide the total stocks of money at any given time into the "production fund," which during the income period diminishes from the full amount of income to zero, and the "cash reserves" which are kept by individuals in addition, we can dismiss the "cash reserves" completely. For currently formed savings are used immediately for the expansion of the economic system and therefore currently reappear as income. As to the "production fund" as cause of an accelerated velocity of circulation, in normal business-cycle periods there are no changes in the socially fixed periods of paying out income, periods which determine the intervals at which money is being spent. It is true that purchases can be concentrated within the early parts of the income period, but only with the consequence that during the later parts the velocity will correspondingly diminish. As long as the customary methods of payment are on the average not changed, the "production fund" cannot account for any acceleration in the velocity of circulation.

Burchardt seems to have in mind consumers only. Besides he overlooks the fact that it is not necessary that current savings should be invested immediately. There is a difference between money which is offered to the business men directly in the form of increased prices for their goods and money which is offered to them through the banks as savings at a definite rate of interest and with certain limitations. It is true that there are no absolutely idle money reserves in the economic system, unless it be the moneys in the pockets of consumers, a very insubstantial amount compared to the total amount of money in circulation. But money may be offered to the industrial system in various forms; with a corresponding difference in the influence which money may then exercise upon prices. If, therefore, savings are diminished, or cash reserves for future purposes are kept down, so that larger amounts of money are offered in direct exchange for commodities, this may be a source of a rise in prices.

[11] *Op. cit.*, p. 136.

But quantitatively still more important are the potential money stocks in the hands of banks. If we include these potential money stocks in the stocks of money at rest, then the wide possibility of increasing the velocity of circulation of money with its due influence on prices becomes obvious. In the existence of the banking system we have a source of substantial possible increase of money in active circulation. Here, however, we are entering another field of business-cycle hypotheses, a group which we can discuss more thoroughly in connection with variants dealing directly with it.

Summary: To sum up:

1. In order that a faster outflow of funds should produce a general increase in the velocity of circulation, this faster outflow should be general.

2. If this outflow is general, it can result in a sustained change in the velocity of circulation only if (*a*) the money returns to the individuals faster than usually, (*b*) the stocks of money can be kept deplenished for a long time, or (*c*) the individuals can get additional money from the idle, actual or potential, funds of the banks.

3. The increased outflow of money, while general, does not imply a faster return of money to the individuals in proportion to their expenditures, because such faster return of money is conditioned by a rise in the velocity of circulation of commodities. The latter rise is different for the different branches of economic activity.

4. In so far as the increased velocity of circulation of money is sustained by an increased velocity of circulation of goods, it cannot have any direct upward effect on prices.

5. The direct raising of prices through an increased velocity of circulation can be achieved only if the velocity is raised through an influx of new funds and a diminution of the relative amount of idle, actual or potential, stocks of money.

6. Thus, velocity of circulation of money cannot be treated as an independent factor in raising or lowering prices, a factor equivalent to the volume of money in circulation. The influence of velocity of circulation on prices is either counterbalanced by

an increased velocity of circulation of goods or made effective through an increased influx of money into active circulation.

7. The foregoing reasoning suggests that study of specific velocities of circulation of money is of considerable importance as reflecting the specific velocities of circulation of commodities, and thus the channels in which a given increase of outflow of money distributes itself in the system. From the point of view of business-cycle study, it is misleading to speak of a general change in velocity of circulation without tracing how this change works itself out in different ways within the different parts of the economic system. The consideration of these ways would both prevent the interpretation of the concept of velocity of circulation as an independent factor and help to establish the disproportionalities which seem to be of considerable importance in any general movements of the monetary phenomenon.[12]

4. *The reality of Stucken's thesis.*—We saw that in so far as it may be an explanation of a change in the general price level, Stucken's thesis reduces itself to the assertion that people, in expectation of a continued price increase, deplenish their monetary stocks and spend more money. The question that arises now is how far such an extrapolation of the price increase into the future, *on the basis, merely, of a preceding rise of prices,* is typical of business-cycle processes. I think that this question can be answered in but one way.

When reformulated, Stucken's thesis is the old one as to the psychological illusion of the business community. It is thus interesting to note that it is used also by Pigou.[13] At large such a definite notion as to the future course of prices is characteristic only of a genuine, rapid money inflation of the type that occurred in Germany, Russia, and other countries during the post-

[12] In this connection see the few inductive studies of velocity of circulation which have appeared in this country, viz., R. W. Burgess, "Velocity Circulation of Bank Deposits," *Journal of the American Statistical Association,* June, 1923, pp. 727 ff., and the articles by C. Snyder which have appeared subsequently. Also, J. H. Rogers, *Stock Speculation and the Stock Market* (Columbia, Missouri, 1927). They reveal the extreme differences in velocity of circulation between different cities and between different parts of the economic system.

[13] *Industrial Fluctuations* (1929), pp. 171–72.

war years. (It is in this connection that Bortkiewicz discussed the problem in the paper quoted in the foregoing.) That such occurrences are general in business cycles is to be doubted. If the business community or consumers spend money very quickly, that may be owing to a number of other factors besides the fear that prices will continue to rise.

Such a situation may occur in a pronounced "boom" when there develop difficulties in the supply of commodities. A given rise or decline of prices is projected into the future only if there are a number of factors which support the expectation. This happens, e.g., in commodity markets when either lack or overbalance of commodities develops. Such a projection may characterize purely speculative fields like the stock market. But it certainly cannot play the rôle which Stucken assigns to it—the carrying forward of an initial price decline or price rise under conditions in which the industrial system is still functioning fairly normally.

Besides this conditioned character of the stimulus for faster spending of money, the execution of such a decision depends upon conditions. It may be surmised that any acceleration of expenditures with money drawn from the stocks of the individuals themselves is very limited. The main volume of funds for such purposes comes from the banks, and their policies become then of considerable importance in determining whether such a rise in velocity of monetary circulation can occur.

As to the second group of causes which Stucken suggests as accounting for an acceleration or diminution of the velocity of circulation, viz., the investment possibilities for accumulated savings, these cases are obviously conditioned by the whole state of the productive and business system. Besides, so far as in these cases the decrease in velocity of circulation is caused by a business situation in which there is a decrease in the velocity of circulation of commodities, we again have no independent factor influencing price movements. The decline in prices will take place because business people have decided to restrict their demand, and with this restriction, accompanied by a decline in the velocity of circulation of commodities, there will be a decline in

the velocity of circulation of money. But there is obviously no specific price decline or, under the opposite conditions, no price rise in which the velocity of money circulation may be treated as an independent causative factor.

B. BANKING MECHANISM

1. *General assumptions.*—The different variants of the general group of banking-mechanism theories of business cycles conceive the cyclical fluctuations as a response of the economic system to certain peculiarities in the activities of banks. They differ in the trait which they prefer to single out among the many that characterize the functioning of the banking mechanism, or more precisely in the explanation as to why the banking mechanism should function in such a way as to make for cyclical fluctuations. But they have a number of assumptions in common.

a) The first assumption is that the activity of banks introduces an element of discretion in the distribution of the monetary supplies. This discretion exists whether or not we assume that banks "create" credit. Even if banks do not advance credits beyond the moneys that have been deposited with them as savings, there is still an element of discretion resting with them. This element is more important than the discretion which could have been exercised by the individuals to whom the savings belong, were the latter to invest their money directly. For the practice of depositing savings in banks, with the consequent concentration of the investable funds in the hands of a closely interconnected group of institutions, makes investment activity more susceptible to any discretionary manifestations. Besides, there is the concentration of current deposits which, when held by individuals, could hardly become a source of credit at all. The discretion of banks is assigned a much wider field if it is assumed that banks can create credit, i.e., that they can advance credits to an amount larger than the actual amount of money deposited with them by economic individuals, whether as depositors or as shareholders. Almost all the banking theories of business cycles assume that banks can create credit in this

sense. For the choice which they can exercise within the limits set by funds actually deposited with them by individuals cannot be conceived as a factor of great importance in the explanation of cyclical fluctuations (see assumption *c*).

b) This discretionary activity of the banks enables them to vary the price for their commodity, i.e., credit, above and below the price that would have been established as a result of free competition. The second assumption of the banking theories asserts, then, that for some reason banks do not manage their commodity in such a way as to maintain the free or equilibrium price of credit. They do not maintain a rate of interest which is in accordance with the demands of the equilibrium situation. As to why there takes place such an erroneous functioning of the banking mechanism, the different variants offer varying explanations. But they all agree that such a discrepancy exists between the actual rate established by the banks and the equilibrium rate which would have arisen out of the free play of economic forces, an equilibrium rate which would have provided for an even flow of savings into the industrial system and would have prevented both undue expansion and undue contraction of the system.

c) If the banks utilize the discretionary power which they possess in such a way as to disturb the equilibrium of supply and demand for money and credit, the resulting discrepancy is of decisive significance as a factor determining the volume of business activity. The variations in the rate of interest, unlike variations in the price of any other commodity, have a general significance for the volume of business undertaken. If the interest rate is too low, i.e., lower than the equilibrium rate, then a larger volume of business is developed than is really justified in the current relations of capital-supply, consumption and savings. If the rate of interest is higher than the equilibrium rate, then the resulting volume of economic activity will be smaller than would have been allowed by the equilibrium. The variations which are thus engendered in the volume of business by the failure of the banking mechanism to keep the actual rate of

interest at the equilibrium level are a sufficient explanation of cyclical fluctuations.

2. *The variant of L. Mises.*[14]—The German economists who make extensive use of the idea of credit creation in their discussions (Schumpeter, Hahn) attribute to L. Mises the earliest thorough exposition of this doctrine as to the ability of banks to create credits. Indeed, while he did not coin the term, in the first edition of his *Theorie des Geldes und der Umlaufsmittel* (1912), Mises discussed at length this power which the banks acquired through the exigencies of the development of economic institutions.

Neither in the first nor in the second edition of his treatise does Mises have a complete theory of cyclical fluctuations. But he discusses very briefly the importance of the activity of the banks and of their manipulation of the market interest rate as a factor of decisive importance in explaining business cycles. He has amplified the explanation in his latest book, *Geldwertstabilisierung und Konjunkturpolitik* (Jena, 1928).

According to Mises, the banks can reduce the interest rate almost to zero, since the lower limit of their interest rate is formed by the expenses of the banks. Such expenses are very small, when it is considered that the banks can "create" credit on the basis of the deposits and capital which they have. It is true that no single bank can indulge in such a lowering of the interest rate, as compared with the interest rate maintained by other banks, since its reserves would be immediately drawn upon through unfavorable balances in clearings. But if most or all of the banks act in harmony, they can lower the interest rate on the market; for the competition that is provided by other lending institutions, i.e., institutions which have to rely mainly on their own or borrowed resources, cannot be effective as over against the supply of credit by the banks.

If such is the case, if banks lower the interest rate in the market as over against the *natural* rate of interest on capital,

[14] Most of the writers of this group in Germany hark back to Wicksell. But while Wicksell discusses at length the natural and actual interest rates, he does not present any developed theory of cyclical fluctuations.

then the volume of business which develops will be larger than that really allowed by the underlying conditions of consumption and saving. To each interest rate on the money market there corresponds a certain volume of business that can be profitably carried on. If the actual rate diverges from the equilibrium rate, the volume of business which is made economically feasible expands or contracts.

Too low an actual rate of interest will result in an undue expansion of credit, and hence in an increased price for commodities. Since such expansion of credit means more money in the first instance in the hands of the business people, the rise of prices will take place first and most appreciably in goods which are subject to demand on the part of the business community, i.e., producers' goods. And the rise of prices once begun, the adjustment of the actual rate of interest to the equilibrium level becomes still harder. For once the increase of prices has taken place, the rate of interest should not only be raised to the level at which it should have been fixed at the start, but raised still more to discount the expectation of rise of prices and of expansion of business activity which has been engendered by the rise of prices and the expansion that has already taken place.

The expansion of business under such conditions means a continual rise of prices and a growing investment in production processes which require heavy capital equipment. It can be sustained if an ever increasing volume of credit is issued by the banks. But the essential material relations of consumption and saving remain more or less the same through the period. There is some amount of *induced* saving during that period, but, according to Mises, the increase in the rate of savings which is thus attained is far from sufficient to counterbalance the undue capital expansion which has taken place. The time eventually comes when the banks cannot continue to expand credit any further, for that would mean monetary inflation, endangering their liquidity and impairing the confidence of the public. Of course, even before any such wholesale inflation occurs, the banks realize that a number of their outstanding loans are not liquid and they try to stop any further credit accommodation by a precipitous raising

of the interest rate. The banks thus stop the process of overcapitalization by an accelerated rise in the rate of interest, which makes for the turn and for the restoration of the normal relation between capital goods and consumers' goods, and brings the process of industrial expansion into line with the underlying relations of consumption and saving.

As presented thus far, Mises' theory is nothing else but an explanation of the fact that if the banks keep the rate of interest below normal, there will follow undue expansion, especially of the producers' goods industries, which resulting overcapitalization and lack of liquidity will endanger the credit structure and call for a drastic reduction in the volume of credits outstanding. According to Mises, the banks, because of their capacity to create credit, are able to indulge in such depressing of the interest rate. But why should they do it? Why should they not learn from the experience of one swing and desist from keeping their interest charges too low in the future?

This question was answered by Mises but lately, first in his speech at the meeting of the Verein für Sozialpolitik, September 15, 1928, and then in his latest book:

> The answer to this question is as follows: because the current philosophy of the business man and of the business politician sees in the lowering of the interest rate an important goal of business policy and because they consider the expansion in the volume of credit as the proper method of attaining this goal.[15]
>
> Each single wave of business conditions—the rise to the peak of the wave and the following decline into the trough—is released by the effort of the banks to extend credit through an increase in the volume of circulating media (notes not covered by money and deposits not covered by money) and thereby to lower the rate of interest. That such efforts, in spite of commonly deplored consequences, are undertaken time and again is to be explained by the prevalent philosophy, which sees in rising prices and especially in low interest rates the goal of business policy, and holds that this latter goal is to be attained through the expansion of circulating media.[16]

In support of this contention that such is the prevailing attitude of the business community, Mises cites the public pressure

[15] *Geldwertstabilisierung und Konjunkturpolitik*, pp. 57–58.

[16] *Ibid.*, pp. 59–60.

upon central banks for low rate of interest, the motives that have been manifest during the establishment of central banking systems (further expansibility of bank currency), and the attitude of business men to the obligation of the banks to supply credit service.

> To the circumstance that this philosophy which is typical of all the decisive groups—the business man, the statesman, the politician, the press—the philosophy which not only disparages but demands the expansion of credit currency—to this circumstance alone is to be attributed the fact that after each crisis and its consequences there follows a "revival" which again must end in a crisis.[17]

Thus Mises' complete theory of cyclical fluctuations consists of two distinct parts: (1) the part that shows how it is possible (from the point of view of economic rationality) for banks to keep their interest rates lower than the normal, and how consequently there develops a full-fledged business expansion, a positive deviation from the normal levels; how such an expansion with its attendant overcapitalization leads inevitably to a recession; (2) the part that explains the recurrence of business fluctuations, i.e., points out the permanent factor that time after time accounts for those peculiarities in banking policy which engender expansion and through it the whole cyclical swing.

It is to be noted that most of the first part of Mises' theory could be incorporated even by a non-banking hypothesis of business cycles. The only element of it that is a purely banking hypothesis is the very vaguely formulated thesis that the banks are able to charge a low price for their commodity because they are able to create money, i.e., because their cost of production is rather low. It is this part that is emphasized more fully by the other variants. The latter do not mention at all the public pressure on banks which, according to Mises, is the sole cause of the recurrence of cyclical swings.

Budge's variant.—By and large Budge follows very closely the discussion of Mises. His approach is slightly different, for, as pointed out in the foregoing, Budge's theory of cyclical fluc-

[17] *Ibid.*, p. 63.

tuations forms the last chapter of his general treatise on economics. He sees in cyclical fluctuations a maladjustment which would have been impossible were the price-making mechanism of supply and demand to function faultlessly. Upon inspection of the supply and demand mechanism in the different productive factors, Budge finds that only in the supply of capital could there be any maladjustment, since only there do we have a concentration of supply in the hands of a few institutions, viz., the banks.

The current relation of consumption and saving determines the ratio at which the industry can expand, the volume of economically justifiable long-time investments. This volume would have been attained were the banks to keep their discount rate at the rate of otherwise justifiable level of interest.

> This adjustment [of the two rates] requires a great deal of foresight on the part of the banks in their activity of extending productive credits, and a far reaching insight into the position of the market. But the banks are subject to temptation, especially in times of expansion *(Aufschwung)*, to be too generous in the granting of capital credit, since their profits from credit business consist mainly of interest charges, which they collect from their debtors. They will earn more from large credit advances at low rates than from limited credit advances at higher rates. They are, therefore, always inclined to keep the interest rate low as long as possible, and decide hesitatingly upon a raise only when this is inevitable. They can easily act in this way because they are always able, through a corresponding lowering of the interest rate, to call forth a widespread demand for credit, in accordance with the already known law, that low prices stimulate demand.[18]

The situation is not improved materially by the activity of central banks:

> . . . . Experience shows that within the limits of their discretion the central banks also are inclined to a too generous granting of credits. Also for them the granting of credits is a profitable business. Furthermore, with the central banks, it is a certain conservatism which accounts for the fact that they cannot decide upon a raise in the discount rate at the proper moment.
>
> In such a mistimed rise of the discount rate during expansion, i.e., in a too generous extension of capital credit, not justified by circumstances, is to be found the true cause of the cycles.[19]

[18] *Grundzüge d. theoretischen Nationalökonomie* (1925), p. 216.

[19] *Ibid.*, p. 217.

The consequences of this maladjustment of interest rates are as described by Mises. There result overexpansion of business, overcapitalization, etc. The real current incomes are impaired and too much capital investment is undertaken. The turning-point comes when, as a result of this maladjustment, there develops an insufficiency of current demand and the banks realize the lack of liquidity. The rate of discount is raised and the extension of bank credits is stopped. In addition to this influence for lower prices there comes the augmented supply of goods realized as a result of previous accelerated investment of capital. The price decline then takes its course, i.e., it leads to re-establishment of the proper ratio between fixed and circulating capital. When the interest rates are lowered again, the economic system is ready for a new upswing.

Budge's theory differs from Mises' only in a few points: (1) the explanation of the banking policy by purely economic reasons, as over against Mises' insistence upon the factor of social pressure; (2) the reference to the conservatism of central banks (a point very much in common with Irving Fisher's explanation of the lag of interest rate); (3) the reference to bank policy as a factor that fails to stop an expansion, once begun, rather than the treatment of bank policy as initiating a revival (Budge is not very explicit upon this point).

Hayek's variant.—As pointed out above, Hayek demands that the theory of cyclical fluctuations present a factor which dissolves the rigid interrelations implied in the system of static equilibrium, and which thus allows a theoretical explanation of the cyclical movements. Such a factor Hayek sees in the credit and monetary system of our present economic life, and he thus tends to subscribe largely to such theories as are presented by Wicksell or Mises.

But these theories, while utilizing commendably the only important factor which loosens the rigidity of the equilibrium system, suffer, according to Hayek, from too general an approach.[20] These explanations conceive of the credit and money factor as influencing economic processes only if the value of

[20] *Geldtheorie und Konjunkturtheorie* (1929), pp. 55–56.

money changes, i.e., if there are changes in the general price level. But this is too narrow a view of the situation. There are numerous changes from the side of money in some section of the economic system, which serve to dissolve the rigidity of the economic equilibrium before there is any change in the general level of prices.

It is true, says Hayek, that both Wicksell and Mises point out the lowering of the rate of interest through monetary factors, which influence is not dependent upon the movement of the general price level, since this influence would have appeared were the expansion of credit used only to prevent a decline in prices.

> But in addition there are a number of phenomena in which an economic system subject to changes in the volume of money differs from a static economy, phenomena which are very important for the understanding of the business cycle. . . . . These come out clearly when we make the subject of investigation not the general price changes, but all the monetarily determined shifts in single prices as contrasted with the price system of static theory.[21]

How, then, does the explanation of business cycles proceed according to Hayek? Let us begin with the single bank, with a single action on the part of a unit in the system. If a bank increases the volume of credit which it extends, whether because a new cash deposit is entered or because the bank has decided to extend its credit in response to a greater demand on the part of its customers, this extension is not confined to this bank only, but works its way with a diminished effect from one bank in the system to the next. Since a bank keeps only a certain percentage of currency or liquid assets against its demand obligations, a cash deposit would enable it to extend its credit by a certain percentage of this cash entry. This new credit being paid out, it goes to the next bank (or several banks), as an increase in both cash and deposits, there giving rise to another expansion of credit, in a certain relation to the increase of the cash-deposit ratio. This expansion in its turn is passed on to another bank, etc. The same infiltration of credit expansion takes place when a bank opens more credit to its customers, without any initial cash deposits having taken place.

[21] *Ibid.*, p. 69.

Thus, provided one bank or a group of banks begin to expand credits, the other banks in the system feel an inflow of cash. Unless they follow the lead in expanding their credits, they will only lose business and accumulate expensive stocks of money. The whole point is in the fact that this expansion takes place without any rise in the interest rate, without any increased cost to business men:

> As long as this expansion process is going on, it is impossible for a single bank to apply the only means of reducing credits, viz. to raise the interest rate. A common action on the part of the banks in this direction . . . . is possible only when either large demand for cash on the part of the trades forces the banks to protect their reserves or when the central bank raises the discount rate. . . . . [In order to bring on a downturn it is only necessary that] as must happen sooner or later, the banks cease to expand credits. Only so long as the volume of circulating media is increasing, can the interest rate on money be kept below the *natural* [equilibrium] interest rate. As soon as this increase ceases, interest must rise to its natural level and thus make unprofitable many undertakings which were called into life first by the additional credits.[22]
>
> The determining (or controlling) cause of business fluctuations is then the fact that in consequence of variations in the volume of circulating media, the interest rate charged by the banks is not necessarily always equal to the equilibrium rate of interest, but is determined in its movement over short terms of time by the *liquidity* of the banks.[23]

Hayek does not describe in detail the phenomena which he is trying to account for, and from his general statements one gathers that he subscribes to the schematic presentation of the processes as given by Mises. He suggests, however, in another part of his volume, the list of problems which seem to him important from the viewpoint of the theory of business fluctuations which he presents. One of them is the problem of induced savings, in whose variations lies one of the essential factors which determine the intensity of the strain and the amplitude of fluctuations of the business cycles.

The original part of Hayek's thesis is not so much the emphasis on the multiplicative relationship between a bank's loans and its currency supplies as the bringing out of the fact that a credit expansion based on this relationship begun in one bank or a group of banks tends to become general, since its influence

[22] *Ibid.*, pp. 100–101. [23] *Ibid.*, p. 103.

infiltrates through the system of clearings and exchanges into the other banks in the banking system. In this he uses Phillips' scheme of the flow of change in bank deposits. It might be said, of course, that the same scheme could be provided for a change in the supply or demand of any commodity, since in the interaction of all the economic quantities in the system the change in one might be said to reverberate all the way through. The important difference in the present case is, however, that (1) production of new credit is possible without additional cost, (2) the change is in the supply of a commodity of general acceptance and of general importance.

Thus, unlike the other theorists, with Hayek the expansion of bank credit is not dependent upon simultaneous action by the banking system as a whole. Loewe's criticism that all banking theories of business cycles explain them by "mistaken policies of an institutional monopolist" does not apply here, since expansion can be traced back to the action of one bank or of a single group of banks only.

Eucken's thesis.—Eucken does not attempt to present a complete theory of business cycles, but his paper, read to the meeting of the Verein für Sozialpolitik in September, 1928, assigns crucial importance to the activity of banks during business cycles, and it is interesting to see how such a dominating significance may be attributed to the banking mechanism.

The main question that Eucken asks is, Assuming that we start in the trough of a business cycle, what are the sources of the next revival? In opposition to other observers, Eucken asserts that at this point of the cycle stocks of commodities are low, and so are stocks of accumulated savings. The business enterprises through the preceding period of depression have reduced both production and capital accumulation. But it is precisely the savings of business enterprises rather than the savings of the non-business groups that form the greatest source of capital accumulation. In this condition of diminished savings, how is the next expansion possible?

Here we find the *additional credits* provided by banks which must be of decisive significance for obtaining increased capital in the beginning of

revival. Precisely during revival the banks grant credits to the enterprisers, credits against which can be set no corresponding savings. . . . . Such credits raise the volume of money, first of all banking currency [*Giralgeld*]. At the end of recession the banks are able to do so because their liquidity is relatively high.[24]

Eucken then discusses two possible objections to his thesis: (1) It might be said that bank credits are for short terms, while the needs of the enterprisers are for long-term credits. It is true, replies Eucken, that such needs for long-term credit are eventually satisfied by flotation of securities, but banks facilitate such flotations by their short-term credits, at least during the early stages of an expansion. In the later stages there is also a gradual conversion of bank loans into longer-term investments either through credits to the enterprises themselves or to their suppliers. (2) It might be said that this granting of additional bank credits and the consequent increase of currency should lead to an immediate rise of prices. Actually, however, prices rise only with a lag after the upturn of production. This apparent contradiction, according to Eucken, is explained by the possibility of increasing production without an appreciable rise in costs. A special case is a possible rise in business activity accompanied by a decline in the price level (see 1882 in England, 1925 in the United States). In these cases there are special factors at play: it is either favorable crops or a generally proceeding rationalization of business and industrial procedures.

If the credit-granting activity of the banks is of such crucial importance during revival, the credit-withdrawal activity of banks is of similarly crucial importance during recession. Here we find a dilemma analogous to that of the trough. At the peak of the cycle, the stocks of commodities have increased and so has the capital accumulation by enterprises. Whence, then, the "lack of capital" that characterizes the first phase of depression? The answer is in the gradually disappearing liquidity of the banks. "It is not the obtaining of capital through credits based on savings that has slackened, since the flow of such savings is actually no smaller. It is that the additional credits can-

[24] *Schriften des Vereins für Sozialpolitik*, CLXXV (1929), 297.

not be kept at the old level."[28] The decline in the flow of investments and in the investment activity (long-time) appears only in the second phase of recession, when there is a decline in demand coinciding with the completion of undertakings begun during expansion.

Eucken's thesis is, of course, not precisely a banking theory of cycles, since he does not attribute the fluctuations to any peculiar activity on the part of banks. He suggests, however, that liquidity forms a basic factor in determining the bankers' credit policy. He therefore joins a number of others, who like Hawtrey, Hayek, Mises, see in the work of the banking mechanism a source of business fluctuations.

Evaluation.—To one who analyzes the various banking theories of business cycles, without having been so thoroughly accustomed to this type of explanation as to lose sight of certain peculiarities, one feature of these theories seems strange. The discussion which they carry on involves generalizations as to the behavior of the business community, on the one hand, and of the banking community, on the other. But while it is assumed that the business community is quite sensitive to changes in bank rates, it is not assumed that the banking community behaves with the same degree of sensibility and sensitiveness.

Indeed, the basic assumption of the banking theories is that changes in bank rates, the discrepancy between the actual interest rates established on the market and the equilibrium interest rate, are a factor which is of decisive significance in determining the volume of business undertaken and the proportion of fixed capital investments to circulating capital. The business community is thus expected to respond almost automatically to the prices which are established by the banks. It is interesting to note that none of the theorists whose hypotheses we discussed find it necessary to ask whether or not the business community is functioning in conditions which would permit it to take into account changes in interest rates, which are after all a rather small cost item in the total cost of their business. This sensitivity is taken for granted.

[28] *Ibid.*, p. 304.

On the other hand, the community of banks is supposed to be somewhat insensitive to what is happening to the field of business, to the prospects, condition, etc., of the economic enterprises to which they are to intrust their funds. It is assumed that the factor which is quoted as the one which accounts for the peculiarities of banking policy, be it the economic reason of striving for greater gains, or the public pressure upon banks for low rates, or the influence upon a given bank of an expansion begun by another bank, exercises its full effect on banking policy without any complication by the circumstances in which the banks may find their prospective customers. It is obviously in a combination of this sensitivity of the business community with what might be called the single-track-mindedness of the banking community that the key to the banking theories of business cycles is to be found.

One might note that such a queer distinction between the two economic groups arises from the assumption of the equilibrium system, on the one hand, and the necessity of explaining cyclical fluctuations, on the other. All of the theoretical variants discussed in the foregoing assume that conditions of economic life correspond to the static equilibrium system. In such conditions there will be, of course, a highly sensitive reaction of economic individuals to such a change in costs as will be brought about by some misapplied action on the part of the banks. There is supposed to be a persistence of relations and of conditions, so that there is no possibility that any part of the system will fail to react to any change that is supposed to have occurred. If one doubts that such an exact picture is in the mind of the theorists whom we are discussing, one can hardly deny that this would be the assumption in the background if they attempted to formulate it definitely.

But the existence of cyclical fluctuations necessitates the introduction of a factor which would provide the disturbing element and explain this continual variability in the behavior of the business community. And if some peculiarity of the banking community's behavior is found to be a factor in the situation, it obviously would have been both a violation of the theo-

retical assumption of the equilibrium economy and a detraction from the clear-cut working of this peculiarity, if it were suggested that the banking community does not act only or predominantly under the influence of the peculiarity singled out. It is in the type of approach to the problem that one must seek the reason for that peculiar combination of overemphasized fact and intellectual fancy which characterizes most of the variants of the banking theories of business cycles.

These general remarks serve as background to a list of critical reflections that suggest themselves in connection with the variants presented in the foregoing:

1. The whole question as to whether the business community is sensitive to changes in interest rates is still very much of a problem. The discussion which has taken place but recently between Carl Snyder and Waldo F. Mitchell[26] has shown that, without deciding the argument one way or another, one may still be in doubt whether the variations in interest rate on loans, confined as they are to only a part of the large volume of loans outstanding in the economic system, are of decisive importance to the business community, even if we take into consideration the marginal operations. Recent cost-accounting studies show what a small part of the total cost of business interest charges play. The burden of proof is therefore on the banking theories of business cycles. They must provide a more specific explanation of the channels through which variations in the interest rate influence the volume of business activity undertaken. Some of them do it, e.g., Hawtrey, who claims that variations in interest rate are of utmost importance first of all to wholesalers, who, according to him, hold the key position as far as the inception or reversal of a cyclical movement is concerned. But unless we have this link between changes in interest rates and the fluctuations in the volume of business stated more fully, we can neither accept the assumption of this connection nor thoroughly evaluate the theory which is based upon it.

2. In the consideration of banking policy in regard to the

[26] See *American Economic Review*, December, 1925, June, 1926, September, 1926, December, 1926, Annual Supplement for 1926.

establishment of a charge for their credit services, all the variants in the foregoing omit completely the element of risk. Whether we say with Mises that banks can charge cheaply, because they can produce credit, and are urged to do so by public pressure; whether we say with Budge that they are prompted to charge cheaply by the prospect of larger gain; whether we say with Hayek that they are pressed to do so by competition; or whether we agree with Eucken that they consider mostly their liquidity; it is obvious that banks consider first of all the question of risk, and that their charge must provide for the coverage of possible losses. The consideration of this element has therefore two consequences: (*a*) the element of risk involved raises the costs of credit creation; (*b*) the consideration of the risk element introduces a whole range of factors which determine banking policy. If banks advance loans to business men, they are obviously called upon to exercise their judgment, not only as to the willingness of their customers to pay, but also to their prospective ability. And while they may consider themselves protected partly by the business man's capital, they will be called upon to exercise some discretion with an eye to the future of the loan, and the advisability of financing this or that undertaking for a given purpose. The risk element obviously makes the banking policy of advancing loans subject to some of the influences which guide the business community at large. And along the same lines, it can be said that central banks have in mind, not only profits to be made from a large volume of rediscounting business, but also the general state of the economic system in regard to some vaguely felt notion as to the normal course of events.

These two objections relate to all the variants which we have been discussing. In regard to each of them, some more specific critical reflections may be added; but they would involve going more deeply into the factual basis of the general objections already stated. But in regard to Hayek's thesis it may be suggested that:

3. If any increase in the volume of credits advanced by a single bank forms a permanent addition to the total volume of

bank credits outstanding (because of the spread of this change through the whole banking system) so does every contraction in the volume of credits advanced by a single bank form a permanent contraction. And if we have before us the picture of the banking system as a whole, we have to assume that the total volume of loans is undergoing a net increase through the fact that there are more loans advanced than loans withdrawn. The interconnection which characterizes the banks in the system works both ways, and therefore presents no independent factor in the situation. We still have to explain why in the banking system as a whole there is a net increase in the volume of loans, and why this is made without any change in the rate charged for credit. It has to be explained why the initial bank was either able to expand without impairing its usual liquidity ratio or why it expanded with the impairment of its liquidity ratio. If this single bank received additional cash, was not there a loss of cash in some other bank? If the bank augmented its loans outstanding without any corresponding increase of cash in its vaults, why should it not have charged more for its service in view of the impairment of its usual ratio of liquidity? It seems to me that the taking of a single bank as a starting-point, instead of speaking of the banking system as a whole, does not change essentially the *argument within the limits imposed by the assumptions of a banking theory of business cycles.*

While the general approach which characterizes the variants discussed prevents them from going deeply into the problem and thus detracts a great deal from their value to a serious student of the problem, their factual content is of considerable interest. It is valuable to know and to emphasize the peculiar conditions under which the functioning of the banking mechanism takes place in our economic system. It is of considerable interest to note the social pressure under which it functions. It is of importance to find out whether the pursuance of motives of gain leads the banking system into credit policies that are erroneous from the point of view of the economic system as a whole. It is interesting to find out whether the elasticity in the supply of credit, and the impossibility for the single banks to

act until it is too late, is of significance in the explanation of the cyclical fluctuations. It may be highly significant to observe that the banking system is in position and under inner compulsion to function in such a way as to account for the turns in the cyclical swing. But all these factors have to be studied further and evaluated in the light of inductive studies, since the theoretical approach which led to the singling out of these factors provides for them too narrow and too artificial a setting.[27]

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[27] In the preceding survey, I have not included any discussions which, while emphasizing the monetary element, do not make it an exclusive cause of cyclical fluctuations. The following discussions are of this character:

Carl Rosch, *Kreditinflation und Wirtschaftskrisen* (Jena, 1927).

W. Röpke, "Kredit und Konjunktur," *Jahrb. für Nationalökonomie und Statistik*, LXIX (1926), 243–85.

J. Baracs, "Zins, Kredit und Konjunktur," *Archiv für Sozialwissenschaft und Localpolitik*, Vol. LIX (1928).

Neither have I discussed the theories of A. Hahn, since they do not seem to form an independent business-cycle hypothesis. A good summary of some of the theories discussed may be found not only in the article of Burchardt referred to in the text, but also in A. Michaelis, *Die Quantitätstheorie als Grundlage der Konjunkturforschung* (Jena, 1929).

AN ESTIMATE OF THE AMOUNT OF MONEY HELD BY THE BANKS AND OF THE AMOUNT OF MONEY IN GENERAL CIRCULATION IN THE UNITED STATES[1]

OTHER ESTIMATES MADE

PROFESSOR KEMMERER'S ESTIMATE: 1879–1904

ONE of the first efforts to estimate the amount of money in circulation in the United States was made by Professor Kemmerer,[2] whose results cover the years 1879–1904. For the amount of money held by the banks of the country, he takes the estimated figures of the Comptroller of the Currency, which are admittedly rough. For, while the average amount of cash held by the national banks at the five or six dates of call of each year may be said to be fairly representative of the amount of money in these banks, the figures for banks other than national banks are far from satisfactory. Since many of the latter banks, especially the private banks, had a disinclination to furnish reports,[3] it becomes necessary for the Comptroller to estimate the number of those which failed to submit reports and the amount of cash held by them. We are, however, not informed as to the method he used in arriving at these estimates. From the "money in the United States" which is obtained from

[1] For counsel and suggestion in connection with the making of this estimate, I am indebted to Professors H. P. Willis, W. C. Mitchell, R. E. Chaddock, and F. C. Mills, of Columbia University; Doctor S. S. Kuznets, of the National Bureau of Economic Research; and Miss L. Bagwell, of the Federal Reserve Bank of New York.

[2] E. W. Kemmerer, *Money and Credit Instruments in their Relation to General Prices* (Henry Holt, 1907), pp. 94–100.

[3] According to the Comptroller, about 90 per cent of the state banks and loan and trust companies and only about 20–25 per cent of the private banks submitted reports (*Annual Report of the Comptroller of the Currency, 1900*, I, xxxviii).

the publications of the Treasury Department,[4] Professor Kemmerer deducts the amount of money in the banks and that in the United States Treasury. The residue is then assumed to be the amount of money in general circulation.

PROFESSOR FISHER'S ESTIMATE: 1896–1909

Professor Fisher made the first attempt to revise the Comptroller's figures for money in the banks.[5] To the amount of money reported in the banks as stated in the annual reports of the Comptroller of the Currency, he adds an estimated amount of money in non-reporting banks, which estimate is found by assuming that the money held by the non-reporting banks bears the same ratio to the amount of money held by the reporting banks as the unreported deposits bear to the reported deposits. This latter assumption is of course subject to error, in that, as Professor Mitchell well points out,[6] it overlooks the fact that the banks which failed to submit reports are private institutions and that the reported private banks maintain smaller reserves in proportion to their deposits than do all the reporting banks. Like Professor Kemmerer, Professor Fisher arrives at the money in circulation by deducting from the money in the United States which was estimated by the Director of the Mint, and which was corrected in 1907 for an estimated error of 135 million dollars,[7] based on the investigations of Mr. Muhleman, the

[4] The first estimate of the monetary circulation of the United States was made in 1873, which became the basis of calculation for many years thereafter. See "Gold in Circulation," *Yale Review*, vii, 105; M. L. Muhleman, *Monetary and Banking Systems* (Monetary Publishing Co., 1908), pp. 97–98.

[5] Irving Fisher, *Purchasing Power of Money* (Macmillan, 1911), Appendix to chap. xii, pp. 432–41.

[6] W. C. Mitchell, *Business Cycles* (University of California Press, 1913), pp. 315–16.

[7] The Director of the Mint made corrections for years previous to 1907 only for the ends of the calendar years. (See *Annual Report of the Director of the Mint, 1907*, p. 87). Professor Fisher takes the average of the corrected figures for gold at the beginning and end of a given year and assumes that this average is the corrected figure for gold at the middle of the year. This corrected figure is then compared with the official figure for gold for the middle of the year, and the difference is taken to be the correction for that date. (See Fisher, *op. cit.* [Macmillan, 1922], p. 433.)

money in the federal treasury, and the money in the reporting banks as given by the Comptroller, and the money in the non-reporting banks as estimated by himself.

PROFESSOR MITCHELL'S ESTIMATE: 1890–1911

By far the most accurate estimate made of the amount of money held by the banks was that of Professor Mitchell.[8] Instead of using the Comptroller's estimate of the number of non-reporting banks as did Professor Fisher in estimating the amount of money in the banks from which reports were not received, Professor Mitchell employs the corrected figures of Professor Barnett[9] for the years 1890–1908, which were based on a study of state reports and bankers' almanacs and which, according to Mitchell, are more trustworthy than those of the Comptroller. For the years 1909–11 he accepts the Comptroller's figures as accurate. Having accepted Professor Barnett's estimate of the number of banks for which the Comptroller failed to obtain reports, he proceeds to estimate the money holdings of these non-reporting institutions by assuming that their cash reserves bear the same ratio to the reserves of the reporting private banks as their deposits, which are estimated from the average deposits of the reporting private banks, bear to deposits of the private banks from which the Comptroller had reports. To secure the amount of money in all banks, he adds this estimated amount of money in the non-reporting banks to the Comptroller's figures for "money in the banks" after a correction has been made in the latter figures for the years 1890–95 by excluding the "cash items" from "cash and cash items," under which rubric the Comptroller was then in the habit of lumping the "cash" and "other cash items" for all reporting institutions except the national banks. The amount of money in circulation is then found by subtracting from the total stock of money in the United States which is given

[8] *Op. cit.*, pp. 311–17.

[9] *State Banks and Trust Companies since the Passage of the National Bank Act*, "Publications of the National Monetary Commission" (1911).

in the Comptroller's annual reports,[10] the amounts held by the federal treasury plus the amount held by all banks.[11] Professor Mitchell's results differ somewhat from those of Professor Fisher, whose figures are invariably higher. These differences, which vary from 10 to 30 millions, are chiefly due to the different assumptions made by the two estimators. The former assumes that the money held by the non-reporting banks bears the same ratio to the money held by reporting *private* banks as the unreported deposits bear to the reported deposits of *private* banks, while the latter takes the simple assumption that the unreported reserves bear the same ratio to the reported reserves of *all* banks as the unreported deposits bear to the reported deposits of *all* banks.

PROFESSOR KING'S ESTIMATE: ANNUAL FIGURES—1880–1920; MONTHLY FIGURES—1914–20

In 1920 Professor King made an estimate of the amount of money in circulation in the United States, annually for the years 1880–1920 and monthly for the years 1914–20, by "means of a careful analysis of official government reports."[12] He does not indicate how the analysis was made; but upon interviewing Miss Lucile Bagwell of the Federal Reserve Bank of New York, who made the estimates under Professor King's direction and who kindly showed me some of her original worksheets, I found that the method employed is similar to that of Professor Fisher. The money holdings of non-reporting banks are estimated on the assumption that the cash held by these institutions bears the same ratio to the cash held by the reporting banks as the estimated deposits in non-reporting banks bear to the deposits in

[10] The figures for the total stock of money for 1890–1906 are revised by Professor Mitchell. In 1907 the Director of the Mint found it necessary to deduct an estimated error of 135 million dollars from the gold believed to be in the United States, but no correction has been made in the official figures for June 30 previous to 1907. Professor Mitchell makes his revision on the assumption that the revised figures for the middle of the year would bear a ratio to the old figures midway between the ratios borne by the revised to the old figures for the December preceding and following. See Mitchell, *op. cit.*, p. 289.

[11] *Ibid.*, pp. 295–96.

[12] W. I. King, "Is Our Currency Elastic?" *Interlocking Chart Series No. 4, Special Service* (Bankers' Statistics Corporation, 1920), II, No. 23.

reporting banks. To this estimated amount of money in the banks which failed to report, the amounts held by reporting banks and, since 1915, the amount held by the Federal Reserve banks and agents are added. This total is taken as money held by all banks. The money in circulation is then obtained by deducting from the stock of money in the United States, the total sum of money held by all banks and the federal treasury.

The monthly figures for money held by all banks are interpolated. With the single annual figure which is taken to be as of June 30, five figures are computed on the assumption that money in all banks show changes corresponding to the variations of the money holdings in the national banks at dates of call. By straight-line interpolation twelve monthly figures are deduced from the five figures at national-bank dates of call. From the "Circulation Statements of the Treasury Department" monthly figures for the monetary stock in the United States are obtained, from which the money in the reporting banks as interpolated together with the money in the federal treasury and in the Federal Reserve banks, which is also given in the circulation statements, is deducted. The remainder is then taken as the amount of money in circulation.

PROFESSOR YOUNG'S ESTIMATE: AT NATIONAL-BANK DATES OF CALL: 1901–14; 1915–26

In connection with his analysis of bank statistics for the United States, Professor Young[12] made an estimate of the amount of money in circulation at national-bank dates of call. The Treasury's monthly circulation statements estimate the monetary stock in the country as of the first of each month, and it is therefore necessary to estimate the amount of money in the country at the different dates of call by the following method: For a date of call falling on one of the first ten days of a month, the treasury's figure at the beginning of the month is used; for a date of call falling on the twentieth day of a month or later, the treasury's figure for the beginning of the next month is utilized; and for dates falling on one of the intermediate dates of the

[12] A. A. Young, "An Analysis of Bank Statistics for the United States," *Review of Economic Statistics*, VI, 284–96; IX, 121–41.

month, an arithmetic average of the figures given in the circulation statements for the month and for the following month is taken. The figures for "money in circulation not in banks" are computed by subtracting from the "money in circulation" thus adjusted, the amounts of money in all banks, which are secured by increasing the money in the national banks by 50 per cent so as to allow for money in other banks. This method applies only for the years 1901–14.[14] For the years 1915–26, a more refined method of estimation is employed.[15] The method of estimating the amount of money in the United States at dates of call is similar to that of the earlier period; that is, the figure nearest to the beginning of each month is used, except for dates of call falling between the eleventh and the twentieth of the month when the averages of the figures for the given month and the following month are used. The amounts of money in all banks except the national and the Federal Reserve banks are estimated by using the Comptroller's figures of "cash in vault" in state banks, loan and trust companies, and private banks, on June 30 (no correction has been made for banks which failed to report), which figures correspond to those of the national banks at June dates of call, and from which other figures are obtained by computing the ratio of money held by these state institutions at June 30 to money held by the national banks, by computing similar ratios for intervening dates of call by straight-line interpolation, and by multiplying the money held by the national banks at these intervening dates of call by the ratios thus obtained. The amount of money in circulation outside of all banks is then secured by deducting from the money in the United States estimated at dates of call, the total amount of money held by the Federal Reserve banks,[16] the national banks, and all other reporting banks at dates of call.

ANNUAL FIGURES—1900–26

Estimates of the total monetary stock in the United States, of the amounts held by the federal treasury and the banks, of

[14] See *ibid.*, VI, 290, notes.

[15] See *ibid.*, IX, 136, notes.

[16] Figures for Federal Reserve banks at dates of call are also estimated by various methods which are too complicated to be described here. See *Review of Economic Statistics*, IX, 136, note "†" at the foot of Table 3.

the amounts in general circulation, and, since 1915, of the amounts held by the Federal Reserve banks, are found in the annual reports of the Comptroller of the Currency. But the figures for the amount of money in all banks are subject to some omissions. Their computation is based on bank reports secured

TABLE I

ESTIMATE OF THE AMOUNT OF MONEY IN NON-REPORTING BANKS, 1912–26*

Year	Number of Private Banks (1)	Cash on Hand in Reporting Private Banks, in Thousands of Dollars (2)	Average Cash on Hand in Reporting Private Banks in Thousands of Dollars (3)=(2)÷(1)	Number of Non-reporting Banks (4)	Estimated Money Holdings in Non-reporting Banks, in Millions of Dollars (5)=(3)×(4)
1912	1,110	7,450	6.7	3,800	25.5
1913	1,016	7,239	7.1	3,261	23.3
1914	1,064	7,295	6.9	3,246	22.3
1915	1,036	6,452	6.2	3,003	18.7
1916	1,014	6,347	6.3	3,000	18.8
1917	936	6,473	6.9	2,830	19.5
1918	1,091	6,639	6.1	2,600	15.8
1919	1,017	7,551	7.4	2,483	18.4
1920	799	6,480	8.1	837	6.8
1921	708	4,470	6.3	446	2.8
1922	673	4,164	6.2	445	2.8
1923	604	4,233	7.0	417	2.9
1924	560	3,868	6.9	461	3.2
1925	523	3,832	7.3	437	3.2
1926	495	4,139	8.4	273†	2.3

* Column (1), giving the number of reporting private banks, and column (2), the cash on hand in reporting private banks, are tabulated from the Comptroller's annual reports. Column (3), showing the average cash held by the reporting private banks, is computed by dividing the cash on hand in column (2) by the corresponding number of banks in column (1). The number of non-reporting banks in column (4) is obtained from the Comptroller's annual reports. The estimated money holdings in the non-reporting banks in column (5) are the product of the multiplication of the figures in column (3) by the corresponding figures in column (4).

† The total number of non-reporting private banks is not given in the Comptroller's report for 1926. The 273 non-reporting banks are in the states of Texas, Michigan, and Iowa, where private banks are not under state supervision, and where figures were obtained for only 122 of the approximately 395 banks.

by the Comptroller, but not all of the banks in the country submit reports. The national banks must send in reports at the request of the Comptroller, but some states even to this day do not require certain banking institutions under their jurisdiction to submit reports. The Comptroller does give us an estimate of the number of these non-reporting institutions, but he fails to give us any estimate of the amount of their money holdings. It is therefore necessary for us to estimate the amount of money that these banks hold.

But before we can proceed with our estimate, we must ascertain whether or not the Comptroller's figures for the number of non-reporting banks are accurate. Professor Mitchell has

TABLE II

ESTIMATE OF THE AMOUNTS OF MONEY HELD BY THE FEDERAL TREASURY, THE BANKS, AND THE PUBLIC 1900–26, IN MILLIONS OF DOLLARS*

Year	Coin and Other Money in the United States (1)	In the Treasury as Assets (2)	Outside of the Treasury (3)	In Reporting Banks (4)	In Non-reporting Banks (5)	In All Banks except the Federal Reserve Banks (6)=(4)+(5)	In the Federal Reserve Banks and with the Agents (7)	In All Banks, including the Federal Reserve, Etc. (8)=(6)+(7)	In General Circulation Exclusive of Amounts Held by All Banks and the Treasury§ (9)=(3)−(8)
1900	2,223	284.5	1,938.5	749.9	37	786.9	.....	786.9	1,151.6
1901	2,362	307.8	2,054.2	794.9	33	827.9	.....	827.9	1,226.3
1902	2,439	313.9	2,125.1	837.9	37	874.9	.....	874.9	1,250.2
1903	2,560	317.0	2,243.0	848.0	33	881.0	.....	881.0	1,362.0
1904	2,674	284.4	2,389.6	982.9	33	1,015.9	.....	1,015.9	1,373.7
1905	2,754	295.2	2,458.8	987.8	36	1,023.8	.....	1,023.8	1,435.0
1906	2,937†	333.3	2,603.7	1,010.7	32	1,042.7	.....	1,042.7	1,561.0
1907	3,115.6	342.6	2,773.0	1,106.5	32	1,138.5	.....	1,138.5	1,634.5
1908	3,378.8	340.7	3,038.1	1,362.9	31	1,393.9	.....	1,393.9	1,644.2
1909	3,406.3	300.1	3,106.2	1,444.3	22	1,466.3	.....	1,466.3	1,639.9
1910	3,419.6	317.2	3,102.4	1,414.6	30	1,444.6	.....	1,444.6	1,657.8
1911	3,556.0	342.0	3,214.0	1,543.5	28‡	1,573.5	.....	1,573.5	1,640.5
1912	3,648.9	364.4	3,284.5	1,563.8	25.5	1,589.3	.....	1,589.3	1,695.2
1913	3,720.1	356.3	3,363.8	1,552.3	23.3	1,575.6	.....	1,575.6	1,788.2
1914	3,738.3	336.3	3,402.0	1,630.0	22.3	1,652.3	.....	1,652.3	1,749.7
1915	3,989.4	345.4	3,644.0	1,447.9	18.7	1,466.6	386.2	1,852.8	1,791.2
1916	4,482.9	298.9	4,184.7	1,472.2	18.8	1,491.0	592.7	2,083.7	2,101.0
1917	5,408.0	268.4	5,139.6	1,487.3	19.5	1,506.8	1,280.9	2,787.7	2,351.9
1918	6,747.0	360.3	6,380.7	882.7	15.8	898.5	2,018.4	2,916.9	3,463.8
1919	7,518.8	584.2	6,934.6	981.3	18.4	999.7	2,167.3	3,167.0	3,767.6
1920	7,894.5	489.7	7,404.8	1,047.3	6.8	1,054.1	2,021.3	3,075.4	4,329.4
1921	8,096.0	461.2	7,634.8	926.3	2.8	929.1	2,795.2	3,724.3	3,910.5
1922	8,177.5	402.5	7,775.0	814.0	2.8	816.8	3,401.0	4,217.8	3,557.2
1923	8,603.7	383.5	8,220.2	777.1	2.9	780.0	3,490.8	4,270.8	3,949.4
1924	8,746.5	356.6	8,389.9	900.8	3.2	904.0	3,635.1	4,539.1	3,850.8
1925	8,221.2	362.0	7,859.2	938.3	3.2	941.5	3,122.7	4,064.2	3,795.0
1926	8,373.0	350.1	8,022.9	975.2	2.3	977.5	3,188.2	4,165.7	3,857.2

* The data in column (1) are from the annual reports of the Comptroller of the Currency, except those for the years 1900–1906, which are the revised figures of Professor Mitchell. Columns (2), (4), and (7) are from the Comptroller's reports. The figures in column (5) for 1900–1911 are the estimate of Professor Mitchell, while those for 1912–26 are from the preceding table. Column (6) is made by adding columns (4) and (5). Column (8) is obtained by adding columns (6) and (7). The figures in column (9), the amount of money in general circulation, are obtained by subtracting the total amount of money in all banks in column (8) from the total amount of money outside of the Treasury in column (3).

† Figures for coin and other money in the United States from 1900 to 1906 are borrowed from Mitchell's *Business Cycles* (University of California Press, 1913), p. 296.

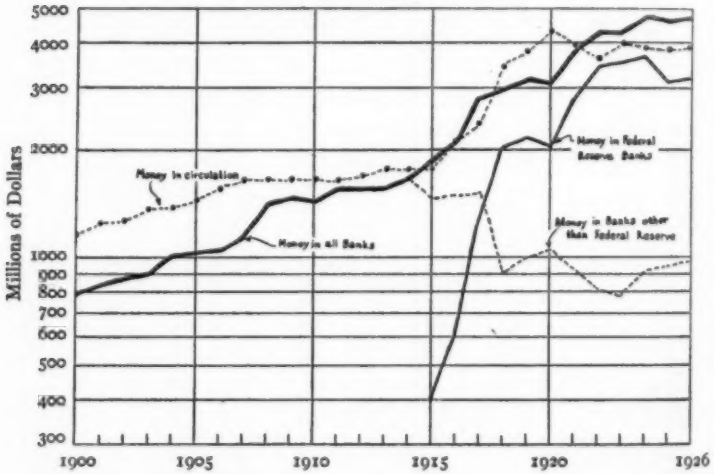
‡ From 1900 to 1911 figures for money in non-reporting banks are taken from Mitchell, *ibid.*, p. 314.

§ During the World War, as a result of currency depreciation in Europe, large amounts of United States currency, estimated to be from 200 to 300 million dollars, of which no official record is kept, were circulating outside of the United States. But since 1924, in consequence of the gradual stabilization of the European currencies, the quantity of American currency circulating outside of this country has become negligible. (See J. P. Young, *European Currency and Finance* [Commission of Gold and Silver Inquiry, United States Senate, 1925], Serial 9, Vol. I, pp. 23–24.) The amount of money in circulation during the war years and the post-war years preceding 1924 should therefore be somewhat smaller than these figures indicate.

accepted Professor Barnett's figures, corrected for double counting for the years 1890–1908, instead of those of the Comptroller, in the absence of any explanation on the part of the latter as to the source upon which he bases his estimates. Professor Barnett's estimate is based on official reports; and where reports are not available, it is computed from technical banking publi-

CHART I

MONEY IN ALL BANKS, MONEY IN CIRCULATION, MONEY IN FEDERAL RESERVE BANKS, AND MONEY IN BANKS OTHER THAN FEDERAL RESERVE BANKS, YEARLY, 1900–26



cations, issued in July, which date conforms to the Comptroller's date of call for all banks. It is the conclusion of Professor Mitchell that the corrected figures of Professor Barnett are more trustworthy, which conclusion I am inclined to accept. For 1909–11, he accepts the Comptroller's figures on the ground that the differences between Barnett's estimate and that of the Comptroller have nearly disappeared by 1907 and 1908, and that Professor Barnett himself accepts the Comptroller's figures for 1909. In the absence of a better estimate I have used the uncorrected figures of the Comptroller for the number of non-reporting banks from 1912 on.

One other matter needs attention. What kind of banks are these non-reporting institutions? Both Professor Fisher and

TABLE III

DISTRIBUTION OF THE MONETARY STOCK OF THE UNITED STATES BETWEEN THE FEDERAL TREASURY, THE BANKS, AND THE PUBLIC ON OR ABOUT JUNE 30, 1900–26

YEAR	PERCENTAGE OF THE TOTAL STOCK HELD BY THE—			PERCENTAGE OF THE STOCK OUTSIDE OF THE TREASURY HELD BY THE—		PERCENTAGE OF THE STOCK IN THE BANKS HELD BY—	
	Treasury (1)	Banks (2)	Public (3)	Banks (4)	Public (5)	All Banks Other than the Federal Reserve Banks (6)	The Federal Reserve Banks (7)
1900	12.8	35.4	51.8	40.6	59.4	100.0	.....
1901	13.0	35.1	51.9	40.3	59.7	100.0	.....
1902	12.9	35.9	51.2	41.2	58.8	100.0	.....
1903	12.4	34.4	53.2	39.3	60.7	100.0	.....
1904	10.6	38.0	51.4	42.5	57.5	100.0	.....
1905	10.7	37.2	52.1	41.6	58.4	100.0	.....
1906	11.3	35.5	53.2	40.0	60.0	100.0	.....
1907	11.0	36.5	52.5	41.1	58.9	100.0	.....
1908	10.1	41.3	48.6	45.9	54.1	100.0	.....
1909	8.8	43.0	48.2	47.2	52.8	100.0	.....
1910	9.3	42.2	48.5	46.6	53.4	100.0	.....
1911	9.6	44.2	46.2	49.0	51.0	100.0	.....
1912	10.0	43.6	46.4	48.4	51.6	100.0	.....
1913	9.6	42.4	48.0	46.8	53.2	100.0	.....
1914	9.0	44.2	46.8	48.6	51.4	100.0	.....
1915	8.7	46.4	44.9	50.8	49.2	79.2	20.8
1916	6.7	46.5	46.8	49.8	50.2	71.6	28.4
1917	5.0	51.5	43.5	54.2	45.8	54.1	45.9
1918	5.3	43.3	51.4	45.7	54.3	30.8	69.2
1919	7.8	42.1	50.1	45.7	54.3	31.6	68.4
1920	6.2	39.0	54.8	41.5	58.5	34.3	65.7
1921	5.7	46.0	48.3	48.8	51.2	24.9	75.1
1922	4.9	51.6	43.5	54.2	45.8	19.4	80.6
1923	4.5	49.6	45.9	52.0	48.0	18.3	81.7
1924	4.1	51.9	44.0	54.1	45.9	19.9	80.1
1925	4.4	49.4	46.2	51.7	48.3	23.2	76.8
1926	4.2	49.8	46.0	51.9	48.1	23.5	76.5

Professor King assume them to be average reporting banks, but Professor Mitchell demonstrates conclusively that the majority of these banks which fail to report are private institutions. Indeed, the Comptroller himself in later years has regarded them as such.

Assuming, then, that these non-reporting banks are private

institutions, we can readily estimate their cash holdings by computing the average cash in the private reporting banks and by applying these averages to the number of banks from which no reports are received.[17]

MONTHLY FIGURES—1914–26

We have now annual figures showing how the monetary stock of the country is distributed among the federal treasury, the banks, and the public. Our next task is to secure monthly figures.

The Comptroller of the Currency requests all national banks to report their condition from three to six times each year, the dates of call being distributed throughout the year.[18] The returns are tabulated and published in the *Abstracts of Reports of Condition of National Banks,* in the *Annual Reports of the Comptroller of the Currency,* and in the *Annual Reports of the Secretary of the Treasury.* From these publications we can obtain figures showing the amount of money held by the national banks at various dates of call. If the national banks are representative of the entire banking system, we are of course justified in interpolating our single figure per year which represents the money holdings of all banks for the year, on the basis of the three to six figures per year for the cash in vault of the national banks, representing the amount of money held by all banks at national-bank dates of call. How representative are these national banks? There are 8,000 of them scattered throughout the Union, of which about 35 are located in central reserve cities, 360 are in other reserve cities, and the remainder are country banks.[19] They contain on the average 45 per cent of the total money held by all banks. It can readily be observed from the accompanying

[17] Another way of estimating the amount of money that these non-reporting banks hold is to assume that the cash kept by them bears the same ratio to the money held by the private banks as the estimated deposits bear to the deposits reported to be in the private banks. Both methods yield approximately the same result.

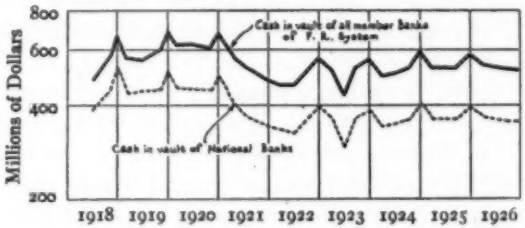
[18] The dates of call from year to year are highly irregular. They are designated at the discretion of the Comptroller and hence opportunities for "window-dressing" on the part of these banks are slight.

[19] See *Abstract of Reports of Condition of All National Banks, No. 152,* p. 13.

chart (Chart II) that the fluctuations of the cash in vault of all the member-banks of the Federal Reserve System and of the cash in vault of the national banks are almost identical.[20] It should be noted that the membership of the Federal Reserve System comprises all the national banks and over a thousand state banks and trust companies,[21] and that all these member-banks hold cash on the average of 56 per cent of the total amount

CHART II

COMPARISON OF THE CASH IN VAULT OF ALL MEMBER BANKS OF THE FEDERAL RESERVE SYSTEM AT DATES OF CALL WITH THE CASH IN VAULT OF THE NATIONAL BANKS AT DATES OF CALL, 1918–26


800
600
400
200
Millions of Dollars
Cash in vault of all member banks of F. R. System
Cash in vault of National Banks
1918 1919 1920 1921 1922 1923 1924 1925 1926

of money contained in all banks exclusive of the Federal Reserve banks. It would seem, then, that the national banks are fairly representative of the entire system and that we have good justification to interpolate on the basis of their figures for money in their vaults at dates of call.

But granted that we are so warranted, it remains for us to devise a method of interpolation.

Our annual figures are centered in the middle of each year, and they therefore correspond to the national-bank figures at the June date of call which occur on or nearest to June 30. One simple method may be thus described: Compute the percentage

[20] Beginning in 1918, the Federal Reserve Board has also requested all member-banks of the Federal Reserve System to report their condition at dates of call of the national banks. From June 29, 1918, to December 29, 1921, the calls on member-banks were not as frequent as the calls on the national banks; but from 1923 on, the calls have been equally as frequent. Data for member-banks are published in the *Federal Reserve Bulletin*.

[21] See *Thirteenth Annual Report of the Federal Reserve Board* (1926), pp. 142–43, Table 76.

deviations of the national-bank series of June of one year (say 1914) to the June of the next (1915), that is, calculate the percentages of the other calls to the first June call; compute the percentage of the next figure (1915) to the first figure (1914) of our annual series which represents the amount of money held by all banks on June 30 of each year, and distribute the result in terms of percentages by a straight line at the various dates of call intervening between the two calls on a weekly basis; apply the percentage deviations of the national-bank series to the corresponding percentages of the all-bank series; and, finally, multiply the first figure (1914) of our annual series by the percentages thus obtained. Thus, by the last operation we obtain figures corresponding to the national-bank figures and in terms of the original unit of dollars.

But this simple method is valid only when the rates of growth or decline (or for want of a better term, we may call them "trends") of the two series are approximately the same, that is, the trend of the national-bank series and that of the all-bank series from one June to the next are similar, but it is subject to serious objections when their trends vary, or when one trend is falling while the other is rising. For, if the two trends are running in the same direction but at different rate, or if they are moving in the opposite directions, the trend of one series will modify that of the other and thus lead to questionable, if not spurious results. An inspection of the two series will convince one that their trends rarely coincide and not infrequently move in the opposite directions. It becomes patent, then, that a method must be found to eliminate the influence of the trend of one series on that of the other.

This can be easily done by computing the percentage of the following June call to the previous June call of the national-bank series; by distributing on a straight line on a weekly basis the percentage thus obtained at other dates of call intervening; by dividing the percentage deviations or the percentages of the other calls to the first June call of the original national-bank series by the trend or percentages distributed on a straight line. Thus, by the last operation we have a series of percentages at dates of call, the trend of which has been eliminated. By applying these percentages to the corresponding percentages of the

all-bank series, distributed at dates of call—which is tantamount to the introduction of the purely fluctuating elements of the national-bank series into the all-bank series—we obtain a new series of percentages which we may apply to the annual figure representing the amount of money in all banks on June 30 of the first year and obtain a series of figures in terms of dollars representing the amount of money in all banks at national-bank dates of call.[22]

[22] We may illustrate the foregoing method by the following example:

Date of Call	Weeks from One Call Date to Another (1)	Cash in Vault of National Banks, in Millions of Dollars (2)	Percentage of Other Dates of Call to June 30 (3)	Trend (4)	Trend Eliminated (5)=(3)÷(4)
1914					
June 30		1,023	100.00	100.00	100.00
Sept. 12	11	981	95.89	96.59	99.28
Oct. 31	7	1,017	99.41	94.42	105.28
Dec. 31	9	735	71.85	91.63	78.41
1915					
Mar. 4	9	784	76.64	88.84	86.27
May 1	8	790	77.22	86.36	89.42
June 23		858	83.87	83.87	100.00

Date of Call	Cash in Vault of All Banks, in Millions of Dollars, on June 30 (6)	Trend (7)	(8)=(5)×(7)	Estimated Cash in All Banks, in Millions of Dollars (9)
1914				
June 30	1,652	100.00	100.00	1,652
Sept. 12		97.63	96.93	1,601
Oct. 31		96.12	101.20	1,672
Dec. 31		94.18	73.85	1,220
1915				
Mar. 4		92.25	79.58	1,315
May 1		90.52	80.94	1,337
June 23	1,467	88.80	88.80	1,467

Column (1) shows the weeks from one call to another; thus, from June 30 to September 12 there are approximately 11 weeks. The cash in vault in column (2) is compiled from the Comptroller's annual reports. Column (3) is derived by dividing the cash on other dates of call by that of June 30. Column (4) is computed by dividing the following June call by the first June call, and the result thus obtained is in turn distributed on a straight line at other dates of call intervening, according to the approximate number of weeks which occurs between one date of call to the next. For example, by dividing 858 million dollars (June 23, 1915) by 1,023 million dollars (June 30, 1914) we have 83.87 per cent—a decrease of 16.13 per cent (100−83.87) between the two calls, 52 weeks apart, or a decrease of 0.310 per cent per week. Thus between June 30 and September 12, 11 weeks apart, there is a decrease of 3.41 per cent (0.310×11). By subtracting 3.41 per cent from 100 per cent, we obtain 96.59, the trend for September 12. Again, between June 30 and October 31, 18 weeks apart, there is a decline of 5.58 per cent (0.310×18). The trend on October 31 is therefore 94.42 per cent (100−5.58). In column (5) the trend is eliminated by dividing the figures in column (3), the percentages of other dates of call to June, by the corresponding figures in column (4), the trend of the series. Column (6) represents the amount of cash on June 30 in all banks except the Federal Reserve banks. Column (7), the trend of the cash in all banks, is computed in the same way that the trend of the national-bank series is computed. In column (8) we put into the all-bank series the purely fluctuating elements of the national-bank series; that is, we apply the percentages in column (5) from which the trend of the national-bank series has been excluded, to the corresponding figures in column (7), the trend of the all-bank series. Finally by multiplying the amount of cash on the first June call by the percentages in column (8) that fall between that June call and the next, we arrive at the figures in column (9), the estimated amount of cash in all except the Federal Reserve banks on national-bank dates of call.

We have estimates for the amount of money in all banks at national-bank dates of call. Our final task is to contrive a method by which we can secure monthly figures.

TABLE IV

ESTIMATED CASH IN VAULT OF ALL BANKS ON NATIONAL-BANK DATES OF CALL, JUNE 4, 1913, TO DECEMBER 31, 1926*

Date of Call	Cash in Vault of All Banks, in Millions of Dollars	Date of Call	Cash in Vault of All Banks, in Millions of Dollars	Date of Call	Cash in Vault of All Banks, in Millions of Dollars
1913		1917—*Cont.*		1921—*Cont.*	
June 4	1,576	Sept. 11	1,007	June 30	929
Oct. 21	1,527	Nov. 20	1,076	Sept. 6	891
1914		Dec. 31	1,127	Dec. 31	853
Jan. 13	1,682	1918		1922	
Mar. 4	1,651	Mar. 4	980	Mar. 10	840
June 30	1,652	May 10	1,051	May 5	838
Sept. 12	1,601	June 29	899	June 30	817
Oct. 31	1,672	Aug. 31	855	Sept. 15	843
Dec. 31	1,220	Nov. 1	1,043	Dec. 29	1,015
1915		Dec. 31	1,229	1923	
Mar. 4	1,315	1919		Apr. 3	945
May 1	1,337	Mar. 4	1,025	June 30	780
June 23	1,467	May 12	1,070	Sept. 14	965
Sept. 2	1,567	June 30	1,000	Dec. 31	1,022
Nov. 10	1,609	Sept. 12	1,032	1924	
Dec. 31	1,557	Nov. 17	1,057	Mar. 31	903
1916		Dec. 31	1,195	June 30	904
Mar. 7	1,611	1920		Oct. 10	943
May 1	1,521	Feb. 28	885	Dec. 31	1,073
June 30	1,491	May 4	1,069	1925	
Sept. 12	1,567	June 30	1,054	Apr. 6	947
Nov. 17	1,617	Sept. 8	1,117	June 30	942
Dec. 27	1,681	Nov. 15	1,071	Sept. 28	956
1917		Dec. 29	1,084	Dec. 31	1,040
Mar. 5	1,738	1921		1926	
May 1	1,736	Feb. 21	967	Apr. 12	992
June 20	1,507	Apr. 28	1,098	June 30	978
				Dec. 31	861

* These figures are interpolated by the method described above. It should be noted that the figures on or about June 30 are those of our annual estimates of the amount of money in all banks. The accompanying chart (Chart III) demonstrates the similarity of the behavior of the interpolated and the actual national bank series.

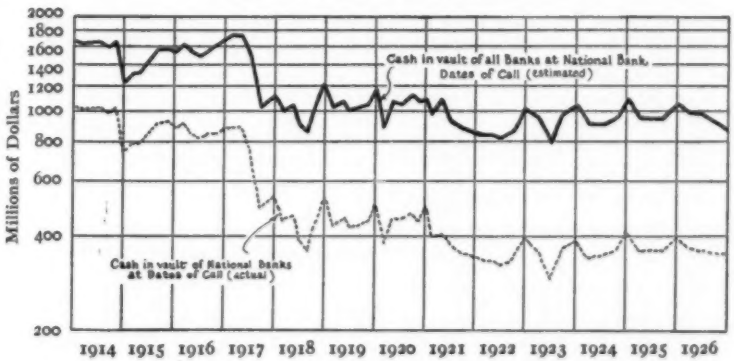
With our estimates at national-bank dates of call, we can of course compute monthly figures by means of simple straight-line interpolation. This method is satisfactory when the calls are frequent. And when to the frequency of calls is added the condition of a long period under interpolation with dates of call

varying from year to year, it becomes particularly applicable.[23] But this method is highly questionable when the calls are far apart, as in 1923–25 when there were four calls each year and in 1926 when there were only three.

Since December, 1917, the Federal Reserve Board has secured and published in its monthly bulletins weekly data con-

CHART III

COMPARISON OF THE ESTIMATED CASH IN VAULT OF ALL BANKS AT NATIONAL BANK DATES OF CALL WITH THE ACTUAL CASH IN VAULT OF NATIONAL BANKS AT DATES OF CALL, 1914–26



cerning the condition of certain member-banks, of which there are now about 700, located in leading cities (central reserve, reserve, and other cities).[24] On the accompanying chart (Chart IV) the estimated cash in vault of all banks at national-bank dates of call and the actual cash in vault of the 700 reporting member-banks at dates (of call) nearest to the national-bank dates of call are plotted. A study of the two curves will show that while there is marked disagreement in some years, as in 1921–22 and in the last half of 1926, there is, on the whole, a fair degree of correspondence in their fluctuations and ampli-

[23] A long period with frequent calls varying from year to year is desirable because the errors involved in straight-line interpolation will cancel out and the seasonal elements in the interpolated data will be retained.

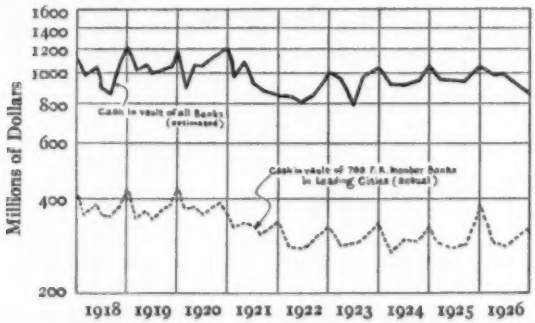
[24] See letter from the Federal Reserve Board requesting reports for the first time (*Federal Reserve Bulletin*, IV (1918), 61).

tudes, despite the fact that their dates are not identical. It is therefore deemed wise to interpolate monthly figures on the basis of the cash in vault of the 700 reporting member-banks for the years 1918–26.

The method of interpolation is similar to that employed in interpolating figures at dates of call of the national banks. Since the 700 members report regularly once a week to the Federal Reserve Board, it is but an adventitious occurrence that the call

CHART IV

COMPARISON OF THE ESTIMATED CASH IN VAULT OF ALL BANKS AT NATIONAL BANK DATES OF CALL WITH THE ACTUAL CASH IN VAULT OF 700 FEDERAL RESERVE MEMBER BANKS IN LEADING CITIES AT DATES NEAREST TO THE NATIONAL BANK DATES OF CALL, 1918–26.



dates should fall exactly on the national-bank dates of call or on the first of each month, for both of which data concerning the cash in vault are desired. We must therefore compile data nearest to these dates. It becomes a simple matter now to compute the percentages of figures for other dates to those nearest to the national-bank dates of call. The trend between two dates nearest to the corresponding national-bank dates of call is then distributed on a straight line and on a daily basis among the other dates intervening, and finally eliminated by dividing the percentages of the original series by the corresponding figures of the trend as in the case of interpolating figures at national-bank dates of call by means of national-bank data. The trend of our estimated series of money in all banks at national-bank

dates of call from one date of call to another is computed and distributed on a straight line in the same way that the trend of the other series is distributed. By multiplying this distributed trend by the corresponding figures of the reporting member-bank

TABLE V

ESTIMATED CASH IN VAULT OF ALL BANKS ON THE FIRST OF EACH MONTH, 1914–26, IN MILLIONS OF DOLLARS*

Month	1914	1915	1916	1917	1918	1919	1920
Jan.	1,658	1,220	1,557	1,681	1,127	1,229	1,195
Feb.	1,671	1,267	1,582	1,709	983	1,029	926
Mar.	1,654	1,309	1,605	1,734	980	999	885
Apr.	1,651	1,325	1,571	1,738	1,006	1,037	942
May	1,651	1,337	1,521	1,736	1,040	1,028	1,005
June	1,651	1,403	1,506	1,620	965	1,016	1,052
July	1,652	1,467	1,491	1,507	899	1,000	1,054
Aug.	1,649	1,515	1,523	1,295	868	971	1,051
Sept.	1,647	1,564	1,555	1,082	855	974	1,041
Oct.	1,627	1,584	1,581	1,026	930	987	1,024
Nov.	1,672	1,603	1,604	1,056	1,043	996	1,039
Dec.	1,450	1,589	1,636	1,088	1,110	1,066	1,081

Month	1921	1922	1923	1924	1925	1926	1927
Jan.	1,084	853	1,015	1,022	1,073	1,040	861
Feb.	1,016	723	875	882	921	873	.....
Mar.	991	774	900	920	928	916	.....
Apr.	955	836	943	903	879	932	.....
May	1,083	838	908	878	936	964	.....
June	977	836	829	911	931	990	.....
July	929	817	780	904	942	978	.....
Aug.	874	789	807	895	923	929	.....
Sept.	838	796	904	895	901	860	.....
Oct.	854	823	940	881	956	874	.....
Nov.	784	833	917	955	927	886	.....
Dec.	771	874	952	1,019	930	807	.....

* These figures are obtained by straight-line interpolation for the years 1914–17 and by a more complicated method, described above, for the years 1918–26. This series representing the cash in vault of all banks, together with the actual series of the cash in vault of the 700 reporting member-banks, is plotted in Chart V.

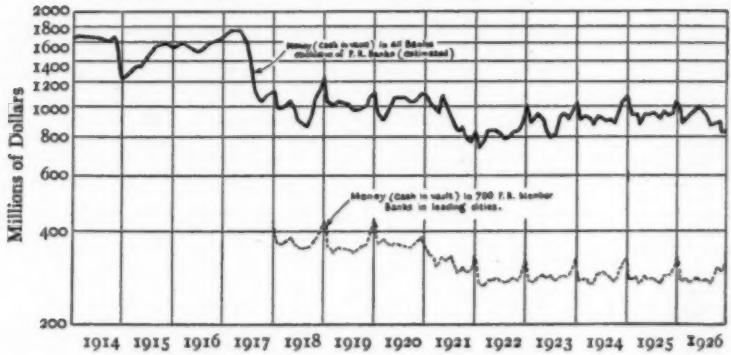
series, from which the trend has been removed, we have a set of percentages, which, when successively applied to our estimated figures on national-bank dates of call, give us an estimate of the amount of money in all banks outside of the Federal Reserve banks on the first of each month. We are forced, however, to resort to straight-line interpolation for our monthly figures for the years 1914–17. Here we are perhaps not unwarranted in

our assumption of a straight line, for there were six calls yearly throughout the period, or, on an average, two months between calls.

We are now ready to make monthly estimates for the amounts of money in the federal treasury, in all banks including the Federal Reserve banks and in general circulation.

CHART V

COMPARISON OF THE ESTIMATED CASH IN VAULT OF ALL BANKS EXCLUSIVE OF THE FEDERAL RESERVE BANKS WITH THE ACTUAL CASH IN VAULT OF 700 FEDERAL RESERVE MEMBER BANKS IN LEADING CITIES, ON THE FIRST DAY OF EACH MONTH; ALL BANK FIGURES, 1914–26; MEMBER BANK FIGURES, 1918–26.



Previous to July 1, 1922, the monthly circulation statements of the Treasury Department give us figures as of the first of each month for the "general stock of money in the United States," "money held in the Treasury as assets of the government," "money held for the Federal Reserve banks and agents against Federal Reserve notes,"[28] and "money in circulation." "Money in circulation" includes money held by the public, the reporting banks, and the Federal Reserve banks exclusive of the amounts held for them against Federal Reserve notes. We have already estimates for the amount of money in all except the Federal Reserve banks. Since the figures for the amount of cash held by the Federal Reserve banks are not given in the circulation statements, it is necessary that we compile them from the *Federal*

[28] Figures were first given in March, 1915.

Reserve Bulletin. For the period between April, 1915, and March, 1917, we must tabulate them directly from the summary statements of the Federal Reserve banks at dates nearest to the first of the month. By adding these figures thus derived, to the corresponding figures which appear in the circulation statements as money held for the Federal Reserve banks and agents, we obtain the amount of money held by and for the Federal Reserve banks and agents. For the period between April, 1917, and June, 1922, monthly figures for the amount of money held for and by the Federal Reserve banks and agents are borrowed directly from the *Federal Reserve Bulletins*.[26] Since July 1, 1922, the form of the circulation statement has been revised. The general stock of money in the country is divided into "money held in the treasury" and "money outside of the treasury." Included in the former are "money held in trust against gold and silver certificates and treasury notes of 1890," "money held as reserve against United States notes and treasury notes of 1890," "money held for the Federal Reserve banks and agents," and "all other money." Money outside of the treasury consists of amounts held by the Federal Reserve banks and agents and the public. In this revised statement "money held in trust against gold and silver certificates and treasury notes of 1890" is counted twice—once in the treasury as either gold which is held dollar for dollar to secure gold certificates or in standard silver dollars which are likewise held dollar for dollar to secure silver certificates or treasury notes of 1890—and again outside of the treasury in the forms of gold and silver certificates and treasury notes of 1890. We must therefore omit this item of "money held in trust against gold and silver certificates and treasury notes of 1890" from consideration. The amount of money held as "reserve against United States notes and treasury notes of 1890" plus "all other money" make up what was known in the old form of the statement as "money held in the treasury as assets of the govern-

[26] Beginning in the June issue (1918) tables showing the general stock of money in the United States, the amounts held by the federal treasury, by and for the Federal Reserve banks, and by the public are published monthly. For an explanation regarding the construction of these tables, see *Federal Reserve Bulletin*, IV, 506.

TABLE VI

ESTIMATE OF THE AMOUNTS OF MONEY HELD BY THE FEDERAL TREASURY, THE BANKS, AND THE PUBLIC ON THE FIRST OF EACH MONTH, 1914–26, IN MILLIONS OF DOLLARS*

Date	Coin and Other Money in the United States (1)	In the Treasury as Assets (2)	Outside of the Treasury (3)	In the Federal Reserve Banks (4)	In All Banks (5)	In All Banks including the Federal Reserve Banks (6)	In General Circulation Exclusive of Amounts Held by All Banks and the Treasury (7)
1914							
Jan.	3,775	328	3,447	.....	1,658	1,658	1,789
Feb.	3,765	323	3,442	.....	1,671	1,671	1,771
Mar.	3,768	318	3,450	.....	1,654	1,654	1,796
Apr.	3,774	324	3,450	.....	1,651	1,651	1,799
May	3,790	314	3,476	.....	1,651	1,651	1,825
June	3,779	299	3,480	.....	1,651	1,651	1,829
July	3,739	319	3,420	.....	1,652	1,652	1,768
Aug.	3,736	368	3,368	.....	1,649	1,649	1,719
Sept.	3,820	341	3,479	.....	1,647	1,647	1,832
Oct.	4,038	343	3,695	.....	1,627	1,627	2,068
Nov.	4,055	340	3,715	.....	1,672	1,672	2,043
Dec.	4,031	401	3,630	.....	1,450	1,450	2,180
1915							
Jan.	3,972	427	3,545	.....	1,220	1,220	2,325
Feb.	3,926	442	3,484	.....	1,267	1,267	2,217
Mar.	3,898	414	3,484	.....	1,309	1,309	2,175
Apr.	3,918	398	3,520	300	1,325	1,625	1,895
May	3,911	372	3,539	311	1,337	1,648	1,891
June	3,923	337	3,586	344	1,403	1,747	1,839
July	3,997	337	3,660	386	1,467	1,853	1,807
Aug.	4,010	359	3,651	386	1,515	1,901	1,750
Sept.	4,062	339	3,723	398	1,564	1,962	1,761
Oct.	4,171	312	3,859	443	1,584	2,027	1,832
Nov.	4,249	292	3,957	496	1,603	2,099	1,858
Dec.	4,329	293	4,036	555	1,589	2,144	1,892
1916							
Jan.	4,402	290	4,112	582	1,557	2,139	1,973
Feb.	4,418	278	4,140	608	1,582	2,190	1,950
Mar.	4,382	279	4,103	554	1,605	2,159	1,944
Apr.	4,373	282	4,091	544	1,571	2,115	1,976
May	4,368	288	4,080	515	1,521	2,036	2,044

* Columns (1) and (2) are compiled from the monthly circulation statements of the Treasury Department. Since July 1, 1922, when the form of the statements was altered, column (2) has been made up of the sums of "money held as reserve against United States notes and treasury notes of 1890" and "all other money." Column (3) is obtained by subtracting from the figures in column (1) the figures in column (2). Column (4) is compiled in the following manner: From April 1, 1915, to March 1, 1917, it is made by adding to the "money held for the Federal Reserve banks and agents" which appears in the circulation statements, the money held by the Federal Reserve banks, which is tabulated from the *Federal Reserve Bulletin*. The figures for the period between April 1, 1917, and June 1, 1922, are compiled directly from tables which appear monthly in the *Federal Reserve Bulletin* under the rubric "money held by the Treasury, the Federal Reserve banks, and the general public." Since July 1, 1922, the figures have been the sums of the "money held for the Federal Reserve banks and agents" by the Treasury and the "money held by the Federal Reserve banks"; both items are published in the circulation statements. Column (5) is borrowed from the preceding table: "Estimated Cash in Vault of All Banks." Column (6) is made by adding to the figures in column (5) the corresponding figures in column (4). The money in circulation in the last column (7) is obtained by deducting the figures in column (6) from the corresponding figures in column (3).

TABLE VI—*Continued*

Date	Coin and Other Money in the United States (1)	In the Treasury as Assets (2)	Outside of the Treasury (3)	In the Federal Reserve Banks (4)	In All Banks (5)	In All Banks including the Federal Reserve Banks (6)	In General Circulation Exclusive of Amounts Held by All Banks and the Treasury (7)
1916—*Cont.*							
June	4,375	281	4,094	555	1,506	2,061	2,033
July	4,472	293	4,179	593	1,491	2,084	2,095
Aug	4,525	370	4,155	556	1,523	2,079	2,076
Sept	4,580	350	4,230	550	1,555	2,105	2,125
Oct	4,699	326	4,373	604	1,581	2,185	2,188
Nov	4,780	320	4,460	651	1,604	2,255	2,205
Dec	4,850	303	4,547	711	1,636	2,347	2,200
1917							
Jan	5,012	299	4,713	764	1,681	2,445	2,268
Feb	5,043	279	4,764	850	1,709	2,559	2,205
Mar	5,146	257	4,889	857	1,734	2,591	2,298
Apr	5,312	258	5,054	958	1,738	2,696	2,358
May	5,415	265	5,150	1,033	1,736	2,769	2,381
June	5,425	245	5,180	1,028	1,620	2,648	2,532
July	5,480	254	5,226	1,281	1,507	2,788	2,438
Aug	5,513	248	5,265	1,396	1,295	2,691	2,574
Sept	5,506	254	5,252	1,374	1,082	2,456	2,796
Oct	5,595	242	5,353	1,429	1,026	2,455	2,898
Nov	5,769	242	5,527	1,546	1,056	2,602	2,925
Dec	6,026	248	5,778	1,647	1,088	2,735	3,043
1918							
Jan	6,256	277	5,979	1,724	1,127	2,851	3,128
Feb	6,174	333	5,841	1,834	983	2,817	3,024
Mar	6,352	331	6,021	1,827	980	2,807	3,214
Apr	6,480	340	6,140	1,874	1,006	2,880	3,260
May	6,541	321	6,220	1,910	1,040	2,950	3,270
June	6,615	348	6,267	1,984	965	2,949	3,318
July	6,742	356	6,386	2,018	899	2,917	3,469
Aug	6,896	391	6,505	2,054	868	2,922	3,583
Sept	7,093	370	6,723	2,070	855	2,925	3,798
Oct	7,391	380	7,011	2,085	930	3,015	3,996
Nov	7,590	399	7,191	2,125	1,043	3,168	4,023
Dec	7,670	416	7,254	2,123	1,110	3,233	4,021
1919							
Jan	7,781	455	7,326	2,221	1,229	3,450	3,876
Feb	7,612	490	7,122	2,253	1,029	3,282	3,840
Mar	7,566	546	7,020	2,169	999	3,168	3,852
Apr	7,587	551	7,036	2,195	1,037	3,232	3,804
May	7,615	554	7,061	2,215	1,028	3,243	3,818
June	7,592	561	7,031	2,222	1,016	3,238	3,793
July	7,588	579	7,009	2,167	1,000	3,167	3,842
Aug	7,525	589	6,936	2,142	971	3,113	3,823
Sept	7,564	611	6,953	2,099	974	3,073	3,880
Oct	7,663	616	7,047	2,088	987	3,075	3,972
Nov	7,722	605	7,117	2,083	996	3,079	4,038
Dec	7,783	618	7,165	1,993	1,066	3,059	4,106

TABLE VI—*Continued*

Date	Coin and Other Money in the United States (1)	In the Treasury as Assets (2)	Outside of the Treasury (3)	In the Federal Reserve Banks (4)	In All Banks (5)	In All Banks including the Federal Reserve Banks (6)	In General Circulation Exclusive of Amounts Held by All Banks and the Treasury (7)
1920							
Jan.	7,961	605	7,356	2,044	1,195	3,239	4,117
Feb.	7,745	625	7,120	2,010	926	2,936	4,184
Mar.	7,806	547	7,259	1,981	885	2,866	4,393
Apr.	7,761	503	7,258	1,984	942	2,926	4,332
May	7,756	489	7,267	1,976	1,005	2,981	4,286
June	7,805	463	7,342	1,989	1,052	3,041	4,301
July	7,887	485	7,402	2,021	1,054	3,075	4,327
Aug.	7,928	484	7,444	2,059	1,051	3,110	4,334
Sept.	7,997	486	7,511	2,032	1,041	3,073	4,438
Oct.	8,136	472	7,664	2,111	1,024	3,135	4,529
Nov.	8,255	504	7,751	2,134	1,039	3,173	4,578
Dec.	8,282	492	7,790	2,205	1,081	3,286	4,504
1921							
Jan.	8,373	494	7,879	2,378	1,084	3,462	4,417
Feb.	8,171	499	7,672	2,439	1,016	3,455	4,217
Mar.	8,085	494	7,591	2,385	991	3,376	4,215
Apr.	8,083	497	7,586	2,535	955	3,490	4,096
May	8,041	508	7,533	2,512	1,083	3,595	3,938
June	8,074	499	7,575	2,563	977	3,540	4,035
July	8,024	461	7,563	2,698	929	3,627	3,936
Aug.	7,988	432	7,556	2,819	874	3,693	3,863
Sept.	8,011	432	7,579	2,907	838	3,745	3,834
Oct.	8,079	431	7,648	2,986	854	3,840	3,808
Nov.	8,047	458	7,589	2,982	784	3,766	3,823
Dec.	8,086	451	7,635	3,082	771	3,853	3,782
1922							
Jan.	8,282	428	7,854	3,147	853	4,000	3,854
Feb.	8,079	424	7,655	3,243	723	3,966	3,689
Mar.	8,076	417	7,659	3,225	774	3,999	3,660
Apr.	8,109	433	7,676	3,227	836	4,063	3,613
May	8,147	411	7,736	3,318	838	4,156	3,580
June	8,127	417	7,710	3,316	836	4,152	3,558
July	8,179	402	7,777	3,401	817	4,218	3,559
Aug.	8,228	390	7,838	3,500	789	4,289	3,549
Sept.	8,304	389	7,915	3,521	796	4,317	3,598
Oct.	8,388	409	7,979	3,463	823	4,286	3,693
Nov.	8,439	413	8,026	3,455	833	4,288	3,738
Dec.	8,482	442	8,040	3,423	874	4,297	3,743
1923							
Jan.	8,614	407	8,207	3,474	1,015	4,489	3,718
Feb.	8,443	389	8,054	3,545	875	4,420	3,634
Mar.	8,490	409	8,081	3,469	900	4,369	3,712
Apr.	8,455	418	8,037	3,381	943	4,324	3,713
May	8,471	402	8,069	3,401	908	4,309	3,760
June	8,537	382	8,155	3,449	829	4,278	3,877
July	8,603	382	8,221	3,491	780	4,271	3,950
Aug.	8,648	392	8,256	3,561	807	4,368	3,888

TABLE VI—*Continued*

Date	Coin and Other Money in the United States (1)	In the Treasury as Assets (2)	Outside of the Treasury (3)	In the Federal Reserve Banks (4)	In All Banks (5)	In All Banks including the Federal Reserve Banks (6)	In General Circulation Exclusive of Amounts Held by All Banks and the Treasury (7)
1923—*Cont.*							
Sept.	8,707	384	8,323	3,546	904	4,450	3,873
Oct.	8,772	387	8,385	3,535	940	4,475	3,910
Nov.	8,795	397	8,398	3,563	917	4,480	3,918
Dec.	8,837	373	8,464	3,540	952	4,492	3,972
1924							
Jan.	8,977	397	8,580	3,629	1,022	4,651	3,929
Feb.	8,800	386	8,414	3,732	882	4,614	3,800
Mar.	8,798	375	8,423	3,615	920	4,535	3,888
Apr.	8,758	379	8,379	3,566	903	4,469	3,910
May	8,777	388	8,389	3,629	878	4,507	3,882
June	8,751	379	8,372	3,556	911	4,467	3,905
July	8,746	356	8,390	3,635	904	4,539	3,851
Aug.	8,704	364	8,340	3,675	895	4,570	3,770
Sept.	8,676	360	8,316	3,542	895	4,436	3,880
Oct.	8,693	365	8,328	3,521	881	4,402	3,926
Nov.	8,730	372	8,358	3,479	955	4,434	3,924
Dec.	8,738	383	8,355	3,361	1,019	4,380	3,975
1925							
Jan.	8,715	368	8,347	3,354	1,073	4,427	3,920
Feb.	8,472	395	8,077	3,326	921	4,247	3,830
Mar.	8,399	364	8,035	3,231	928	4,159	3,876
Apr.	8,338	375	7,963	3,188	879	4,067	3,896
May	8,307	383	7,924	3,199	936	4,135	3,789
June	8,275	371	7,904	3,131	931	4,062	3,842
July	8,226	369	7,857	3,123	942	4,065	3,792
Aug.	8,188	355	7,833	3,114	923	4,037	3,796
Sept.	8,207	362	7,845	3,060	901	3,961	3,884
Oct.	8,259	381	7,878	3,050	956	4,006	3,872
Nov.	8,324	372	7,952	3,051	927	3,978	3,974
Dec.	8,345	366	7,979	3,008	930	3,938	4,041
1926							
Jan.	8,484	366	8,118	3,110	1,040	4,150	3,968
Feb.	8,323	358	7,965	3,225	873	4,098	3,867
Mar.	8,331	392	7,939	3,125	916	4,041	3,898
Apr.	8,336	379	7,957	3,151	932	4,083	3,874
May	8,377	366	8,011	3,156	964	4,120	3,891
June	8,360	359	8,001	3,130	990	4,120	3,881
July	8,373	350	8,023	3,188	978	4,166	3,857
Aug.	8,399	344	8,055	3,196	929	4,125	3,930
Sept.	8,417	361	8,056	3,192	860	4,052	4,004
Oct.	8,442	379	8,063	3,157	874	4,031	4,032
Nov.	8,438	367	8,071	3,138	886	4,024	4,047
Dec.	8,485	371	8,114	3,165	807	3,972	4,142
1927							
Jan.	8,643	374	8,269	3,268	861	4,129	4,140

TABLE VII

DISTRIBUTION OF THE MONETARY STOCK OF THE UNITED STATES AMONG THE FEDERAL TREASURY, THE BANKS, AND THE PUBLIC ON OR ABOUT THE FIRST OF EACH MONTH, 1914–26

YEAR AND MONTH	PERCENTAGE OF THE TOTAL STOCK HELD BY THE—			PERCENTAGE OF THE STOCK OUTSIDE OF THE TREASURY HELD BY THE—		PERCENTAGE OF THE STOCK IN THE BANKS HELD BY—	
	Treasury (1)	Banks (2)	Public (3)	Banks (4)	Public (5)	All Banks Other than the Federal Reserve Banks (6)	The Federal Reserve Banks (7)
1914							
Jan.	8.7	43.9	47.4	48.1	51.9	.....	.....
Feb.	8.6	44.4	47.0	48.5	51.5	.....	.....
Mar.	8.4	43.9	47.7	47.9	52.1	.....	.....
Apr.	8.6	43.7	47.7	47.9	52.1	.....	.....
May	8.3	43.6	48.1	47.5	52.5	.....	.....
June	7.9	43.7	48.4	47.4	52.6	.....	.....
July	8.5	44.2	47.3	48.3	51.7	.....	.....
Aug.	9.9	44.1	46.0	49.0	51.0	.....	.....
Sept.	8.9	43.1	48.0	47.3	52.7	.....	.....
Oct.	8.5	40.3	51.2	44.0	56.0	.....	.....
Nov.	8.4	41.2	50.4	45.0	55.0	.....	.....
Dec.	9.9	36.0	54.1	39.9	60.1	.....	.....
1915							
Jan.	10.6	30.8	58.6	34.4	65.6	.....	.....
Feb.	11.3	32.3	56.4	36.4	63.6	.....	.....
Mar.	10.6	33.6	55.8	37.6	62.4	.....	.....
Apr.	10.2	41.5	48.3	46.2	53.8	81.5	18.5
May	9.5	42.1	48.4	46.6	53.4	81.1	18.9
June	8.6	44.5	46.9	48.7	51.3	80.3	19.7
July	8.4	46.4	45.2	50.6	49.4	79.2	20.8
Aug.	9.0	47.4	43.6	52.1	47.9	79.7	20.3
Sept.	8.3	48.3	43.4	52.7	47.3	79.7	20.3
Oct.	7.5	48.6	43.9	52.5	47.5	78.1	21.9
Nov.	6.9	49.4	43.7	53.0	47.0	76.4	23.6
Dec.	6.8	49.5	43.7	53.1	46.9	74.1	25.9
1916							
Jan.	6.6	48.6	44.8	52.0	48.0	72.8	27.2
Feb.	6.3	49.6	44.1	52.9	47.1	72.2	27.8
Mar.	6.4	49.3	44.3	52.6	47.4	74.3	25.7
Apr.	6.4	48.4	45.2	51.7	48.3	74.3	25.7
May	6.6	46.6	46.8	49.9	50.1	74.7	25.3
June	6.4	47.1	46.5	50.3	49.7	73.1	26.9
July	6.6	46.6	46.8	49.9	50.1	71.5	28.5
Aug.	8.2	45.9	45.9	50.0	50.0	73.3	26.7
Sept.	7.6	46.0	46.4	49.8	50.2	73.9	26.1
Oct.	6.9	46.5	46.6	50.0	50.0	72.4	27.6
Nov.	6.7	47.2	46.1	50.6	49.4	71.1	28.9
Dec.	6.2	48.4	45.4	51.6	48.4	69.7	30.3
1917							
Jan.	6.0	48.8	45.2	51.9	48.1	68.8	31.2
Feb.	5.5	50.7	43.8	53.7	46.3	66.8	33.2

TABLE VII—*Continued*

Year and Month	Percentage of the Total Stock Held by the—			Percentage of the Stock Outside of the Treasury Held by the—		Percentage of the Stock in the Banks Held by—	
	Treasury	Banks	Public	Banks	Public	All Banks Other than the Federal Reserve Banks	The Federal Reserve Banks
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1917—*Cont.*							
Mar.	5.0	50.3	44.7	53.0	47.0	66.9	33.1
Apr.	4.9	50.8	44.3	53.3	46.7	64.5	35.5
May	4.9	51.1	44.0	53.8	46.2	62.7	37.3
June	4.5	48.8	46.7	51.1	48.9	61.2	38.8
July	4.6	50.9	44.5	53.3	46.7	54.1	45.9
Aug.	4.5	48.8	46.7	51.1	48.9	48.1	51.9
Sept.	4.6	44.6	50.8	46.8	53.2	44.1	55.9
Oct.	4.3	43.9	51.8	45.9	54.1	41.8	58.2
Nov.	4.2	45.1	50.7	47.1	52.9	40.6	59.4
Dec.	4.1	45.4	50.5	47.3	52.7	39.8	60.2
1918							
Jan.	4.4	45.6	50.0	47.7	52.3	39.5	60.5
Feb.	5.4	45.6	49.0	48.2	51.8	34.9	65.1
Mar.	5.2	44.2	50.6	46.6	53.4	34.9	65.1
Apr.	5.2	44.4	50.4	46.9	53.1	34.9	65.1
May	4.9	45.1	50.0	47.4	52.6	35.3	64.7
June	5.3	44.6	50.1	47.1	52.9	32.7	67.3
July	5.3	43.3	51.4	45.7	54.3	30.8	69.2
Aug.	5.7	42.3	52.0	44.9	55.1	29.7	70.3
Sept.	5.2	41.2	53.6	43.5	56.5	29.2	70.8
Oct.	5.1	40.8	54.1	43.0	57.0	30.8	69.2
Nov.	5.3	41.7	53.0	44.1	55.9	32.9	67.1
Dec.	5.4	42.2	52.4	44.6	55.4	34.3	65.7
1919							
Jan.	5.8	44.3	49.9	47.1	52.9	35.6	64.4
Feb.	6.4	43.1	50.5	46.1	53.9	31.4	68.6
Mar.	7.2	41.9	50.9	45.1	54.9	31.5	68.5
Apr.	7.3	42.6	50.1	45.9	54.1	32.1	67.9
May	7.3	42.6	50.1	45.9	54.1	31.7	68.3
June	7.4	42.6	50.0	46.1	53.9	31.4	68.6
July	7.6	41.7	50.7	45.2	54.8	31.6	68.4
Aug.	7.8	41.4	50.8	44.9	55.1	31.2	68.8
Sept.	8.1	40.6	51.3	44.2	55.8	31.7	68.3
Oct.	8.0	40.1	51.9	43.6	56.4	32.1	67.9
Nov.	7.8	39.9	52.3	43.3	56.7	32.3	67.7
Dec.	7.9	39.3	52.8	42.7	57.3	34.8	65.2
1920							
Jan.	7.6	40.7	51.7	44.0	56.0	36.9	63.1
Feb.	8.1	37.9	54.0	41.2	58.8	31.5	68.5
Mar.	7.0	36.7	56.3	39.5	60.5	30.9	69.1
Apr.	6.5	37.7	55.8	40.3	59.7	32.2	67.8
May	6.3	38.4	55.3	41.0	59.0	33.7	66.3
June	5.9	39.0	55.1	41.4	58.6	34.6	65.4
July	6.1	39.0	54.9	41.6	58.4	34.3	65.7

TABLE VII—*Continued*

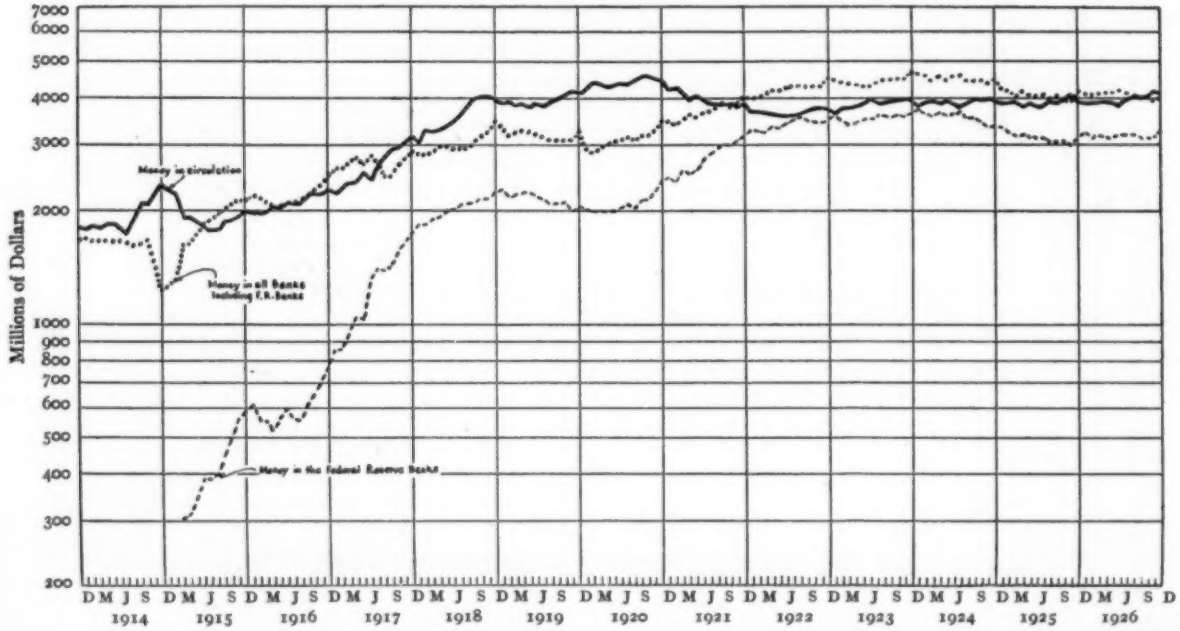
Year and Month	Percentage of the Total Stock Held by the—			Percentage of the Stock Outside of the Treasury Held by the—		Percentage of the Stock in the Banks Held by —	
	Treasury (1)	Banks (2)	Public (3)	Banks (4)	Public (5)	All Banks Other than the Federal Reserve Banks (6)	The Federal Reserve Banks (7)
1920—*Cont.*							
Aug.	6.1	39.2	54.7	41.8	58.2	33.8	66.2
Sept.	6.1	38.4	55.5	40.9	59.1	33.9	66.1
Oct.	5.8	38.5	55.7	40.9	59.1	32.7	67.3
Nov.	6.1	38.4	55.5	40.9	59.1	32.7	67.3
Dec.	5.9	39.7	54.4	42.2	57.8	32.9	67.1
1921							
Jan.	5.9	41.3	52.8	43.9	56.1	31.3	68.7
Feb.	6.1	42.3	51.6	45.0	55.0	29.4	70.6
Mar.	6.1	41.8	52.1	44.5	55.5	29.4	70.6
Apr.	6.1	43.2	50.7	46.0	54.0	27.4	72.6
May	6.3	44.7	49.0	47.7	52.3	30.1	69.9
June	6.2	43.8	50.0	46.7	53.3	27.6	72.4
July	5.7	45.2	49.1	48.0	52.0	25.6	74.4
Aug.	5.4	46.2	48.4	48.9	51.1	23.7	76.3
Sept.	5.4	46.7	47.9	49.4	50.6	22.4	77.6
Oct.	5.3	47.5	47.2	50.2	49.8	22.2	77.8
Nov.	5.6	46.8	47.6	49.6	50.4	20.8	79.2
Dec.	5.6	47.7	46.7	50.5	49.5	20.0	80.0
1922							
Jan.	5.2	48.3	46.5	50.9	49.1	21.3	78.7
Feb.	5.2	49.1	45.7	51.8	48.2	18.2	81.8
Mar.	5.2	49.5	45.3	52.2	47.8	19.4	80.6
Apr.	5.3	50.1	44.6	52.9	47.1	20.6	69.4
May	5.0	51.0	44.0	53.7	46.3	20.2	79.8
June	5.1	51.1	43.8	53.9	46.1	20.1	79.9
July	4.9	51.6	43.5	54.2	45.8	19.4	80.6
Aug.	4.7	52.1	43.2	54.7	45.3	18.4	81.6
Sept.	4.7	52.0	43.3	54.5	45.5	18.4	81.6
Oct.	4.9	51.1	44.0	53.7	46.3	19.2	80.8
Nov.	4.9	50.8	44.3	53.4	46.6	19.4	80.6
Dec.	5.2	50.7	44.1	53.4	46.6	20.3	79.7
1923							
Jan.	4.7	52.1	43.2	54.7	45.3	22.6	77.4
Feb.	4.6	52.4	43.0	54.9	45.1	19.8	80.2
Mar.	4.8	51.5	43.7	54.1	45.9	20.6	79.4
Apr.	4.9	51.1	44.0	53.8	46.2	21.8	78.2
May	4.7	50.9	44.4	53.4	46.6	21.1	78.9
June	4.5	50.1	45.4	52.5	47.5	19.4	80.6
July	4.4	49.6	46.0	52.0	48.0	18.3	81.7
Aug.	4.5	50.5	45.0	52.9	47.1	18.5	81.5
Sept.	4.4	51.1	44.5	53.5	46.5	20.3	79.7
Oct.	4.4	51.0	44.6	53.4	46.6	21.0	79.0
Nov.	4.5	50.9	44.6	53.3	46.7	20.5	79.5
Dec.	4.2	50.8	45.0	53.1	46.9	21.2	78.8

TABLE VII—*Continued*

Year and Month	Percentage of the Total Stock Held by the—			Percentage of the Stock Outside of the Treasury Held by the—		Percentage of the Stock in the Banks Held by—	
	Treasury (1)	Banks (2)	Public (3)	Banks (4)	Public (5)	All Banks Other than the Federal Reserve Banks (6)	The Federal Reserve Banks (7)
1924							
Jan.	4.4	51.8	43.8	54.2	45.8	22.0	78.0
Feb.	4.4	52.4	43.2	54.8	45.2	19.1	80.9
Mar.	4.3	51.5	44.2	53.8	46.2	20.3	79.7
Apr.	4.3	51.0	44.7	53.3	46.7	20.2	79.8
May	4.4	51.4	44.2	53.7	46.3	19.5	80.5
June	4.3	51.0	44.7	53.4	46.6	20.4	79.6
July	4.1	51.9	44.0	54.1	45.9	19.9	80.1
Aug.	4.2	52.5	43.3	54.8	45.2	19.6	80.4
Sept.	4.1	51.1	44.8	53.3	46.7	20.2	79.8
Oct.	4.2	50.6	45.2	52.9	47.1	20.0	80.0
Nov.	4.3	50.8	44.9	53.1	46.9	21.5	78.5
Dec.	4.4	50.1	45.5	52.4	47.6	23.3	76.7
1925							
Jan.	4.2	50.8	45.0	53.0	47.0	24.2	75.8
Feb.	4.7	50.1	45.2	52.6	47.4	21.7	78.3
Mar.	4.3	49.5	46.2	51.8	48.2	22.3	77.7
Apr.	4.5	48.8	46.7	51.1	48.9	21.6	78.4
May	4.6	49.8	45.6	52.2	47.8	22.6	77.4
June	4.5	49.1	46.4	51.4	48.6	22.9	77.1
July	4.5	49.4	46.1	51.7	48.3	23.2	76.8
Aug.	4.3	49.3	46.4	51.5	48.5	22.9	77.1
Sept.	4.4	48.3	47.3	50.5	49.5	22.7	77.3
Oct.	4.6	48.5	46.9	50.9	49.1	23.9	76.1
Nov.	4.5	47.8	47.7	50.0	50.0	23.3	76.7
Dec.	4.4	47.2	48.4	49.4	50.6	23.6	76.4
1926							
Jan.	4.3	48.9	46.8	51.1	48.9	25.1	74.9
Feb.	4.3	49.2	46.5	51.5	48.5	21.3	78.7
Mar.	4.7	48.5	46.8	50.9	49.1	22.7	77.3
Apr.	4.5	49.0	46.5	51.3	48.7	22.8	77.2
May	4.4	49.2	46.4	51.4	48.6	23.4	76.6
June	4.3	49.3	46.4	51.5	48.5	24.0	76.0
July	4.2	49.8	46.0	51.9	48.1	23.5	76.5
Aug.	4.1	49.1	46.8	51.2	48.8	22.5	77.5
Sept.	4.3	48.1	47.6	50.3	49.7	21.2	78.8
Oct.	4.5	47.7	47.8	50.0	50.0	21.7	78.3
Nov.	4.3	47.7	48.0	49.9	50.1	22.0	78.0
Dec.	4.4	46.8	48.8	49.0	51.0	20.3	79.7
1927							
Jan.	4.3	47.8	47.9	49.9	50.1	20.9	79.1

CHART VI

MONEY IN ALL BANKS, MONEY IN CIRCULATION, AND MONEY IN THE FEDERAL RESERVE BANKS, ON THE FIRST DAY OF EACH MONTH, 1914–26


Millions of Dollars
7000
6000
5000
4000
3000
2000
1000
900
800
700
600
500
400
300
200
Money in circulation
Money in all Banks including F.R. Banks
Money in the Federal Reserve Banks
D M J S D
1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924 1925 1926

ment." By adding the amounts held in the treasury for the Federal Reserve banks and agents and those held by the Federal Reserve banks and agents we determine the amount of money in the possession of the Federal Reserve banks.

NOTE

A comparison of Chart VI on which money in circulation, money in all banks, including the Federal Reserve banks, and money in the Federal Reserve banks are plotted, with Chart V is interesting. Chart V indicates that money in all banks sustained a drop in 1914–15. A recovery followed until 1917, when it once more dropped to a low level, from which it has never recovered. Since the attainment of the lower level in 1917, the trend of the series has been slightly downward. A slight decline is observable in 1921–22. Chart VI shows that money in all banks, including the Federal Reserve banks, was on a rising trend from 1915, when the Federal Reserve System was inaugurated, to 1924, when a decline was experienced. There was a decrease during the depression of 1919–20 from which it soon recovered, however. It is interesting to observe that while money in all banks was on a decline in 1921–22 (Chart V), money in all banks, including the Federal Reserve banks, was rising from a decrease in 1919–20 (Chart VI). A study of the curve for money in all banks and the curve for money in the Federal Reserve banks will show that the trend of the all-bank series is determined in a large part from 1915 to 1917 and entirely since by money in the Federal Reserve banks. Since July, 1917, the greater proportion of the money in all banks is held by the Federal Reserve banks. Data for the Federal Reserve banks, it should be remembered, are not estimated but compiled directly from official sources. This being true, it becomes evident that errors which might have been made in the process of interpolation would be relatively minimized. Moreover, the relative importance of any error would be further reduced by the fact that the monetary stock which is derived from official documents and from which we deduct the money held by the Treasury and the banks to obtain figures for money in circulation is a far larger total compared to the estimated figures for money in all banks. The results for 1914–17 are less reliable. In the first place the figures are made by straight-line interpolation; and in the second place, because of the fact that the banks were then carrying the greater part of their reserves in their vaults, the estimated elements must of necessity be larger.

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PRICE COMPETITION IN THE COMMERCIAL PRINTING INDUSTRY OF CHICAGO

PRICE competition that exceeds the limits of reasonableness in the opinion of the industry is an old problem to the commercial printers. In 1839, a few years after the Chicago industry had its start, according to the reminiscences of an old journeyman there was found an "insane system of opposition and competition which has well nigh ruined the printing business."[1] Complaints of price-cutting and unhealthy competition were frequent in the early trade journals, and recur today in every discussion of the problems of the industry. Efforts of employing printers to find a means to control this problem explain a considerable part of the trade association history of the industry.

The book and job or commercial printing industry is highly competitive. There are in Chicago nearly 1,500 printing and book-binding plants, the majority of them small.[2] In 1928 it was said that only 126 plants had a mechanical pay-roll of $1,000 a week or more.[3] In an industry of small plants and of skilled workers, many journeymen become employers, and accordingly proprietors in large numbers have a background of craft rather than business experience. Poor business methods are widespread as a result. An excess of productive capacity above what can be profitably utilized is characteristic of the industry during long periods. The product, for the most part made to order and unstandardized, is largely sold in the local market, although wider competition is of increasing importance, particularly in the case of large contracts. Under such conditions there is a tendency to-

[1] Gersh Martin, "Early Journalism and Printing in Northern Illinois," *Rounds Printers Cabinet*, April, 1879, p. 2.

[2] *United States Census of Manufactures* (1925), pp. 1230–31, 1390–91. In the United States in 1925, 45.5 per cent of the book and job plants had a value of products of from $5,000 to $20,000, and 38.9 per cent of from $20,000 to $100,000. Only 2.6 per cent of the plants had a product of $500,000 or more in the year, but these plants were responsible for 37.6 per cent of the total product.

[3] *Printing*, April 7, 1928, p. 47.

ward price-cutting which reaches cutthroat intensity in periods of depression.

Two other factors complicate the situation in Chicago. In contrast with the other leading printing center, New York, where periodical printing dominates the situation, Chicago has a greater diversity of printing products. Periodical-printing, catalogue work, color-printing, trade composition, law-printing, railroad tariff work, edition and blankbook-binding, as well as commercial printing, all are important. The divergent interests of the various groups of printers, some of whom operate regularly and others on a highly seasonal schedule, some with one department dominant and others another, some competing widely and others within a small group, all make it more difficult to secure general co-operation on business problems in the industry. The second factor, arising largely from the first, is the division of the industry on labor policy. An open-shop movement that began in 1905 was extended after the labor controversies of 1921 and 1922 until, except for the composing rooms, which were still largely controlled by the Typographical Union, the larger part of production was carried on under open-shop conditions. Substantial gains by the pressmen's and bookbinders' unions in 1929 leave the industry still divided on labor policy. This division among the employers has made more difficult the problem of trade organization. The Chicago industry has had to seek a method that would protect the divergent interests of various groups of employing printers, at the same time that it would promote co-operation on common problems.

In meeting the problem of competition, throughout their experience of nearly a century, the Chicago employing printers have used three main methods of attack. Control by definite price agreements was the first method attempted; education in cost-finding methods was the second; and a more general program of education in the industry, drawing upon both earlier methods for material, was the third. All three methods have been supported by a general code against price-cutting.

In the first two decades of the Chicago industry the elements of the competition problem were already present. In 1837 John

Wentworth, printer, wrote of the printer who had established a second shop, "Davis wants me to form a sort of union with him about prices, but as he daily violates the rules already agreed to, I shall have no more to do with him."[4] United action was difficult though there were only two competitors. Two years later these competitors were to advertise a new company as "rats" for cutting prices to get business, but the lowering of prices and wages continued during the depression of the forties.[5] The lack of stability led to an organization movement of the journeymen and the announcement of a scale of prices, or wages, by the Printers' Union in 1850.[6]

No concerted action of the employing printers to stabilize the industry is recorded, however, until the Civil War period. On several occasions when union wage scales were increased during this period, the employing printers issued price lists. The first was "unanimously adopted by the book and job printers of Chicago, to take effect and be binding on and after December 25, 1862," while another is known to have been adopted in 1867 by the Employing Printers' Association.[7] These price lists were adopted by informal meetings of employing printers who decided upon what they considered a fair list of prices, according to the experience of the group, and agreed to maintain those prices. Since the products were made to individual order and were unstandardized, prices were in the form of rates per thousand ems or per page for composition on various types of work, or at flat rates for handbills, cards, checks, or other more standard products, while presswork was charged at rates per token, or 240 sheets, on different presses.

Evidence on the success of these first price agreements in regulating competition is conflicting. One journal said later that they had been generally observed by the best houses, but another spoke of the "ruinous prices at which printing was done in Chi-

[4] *Chicago Times*, June 21, 1874, p. 5.

[5] Martin, *loc. cit.*

[6] *Chicago Daily Journal*, November 30, 1850, p. 3; December 2, 1850, p. 2.

[7] *Printers' Circular*, January 1, 1867, p. 149; *Ben Franklin Monthly*, January, 1910, p. 12.

cago before the fire."[8] Many old-time printers have testified that such agreements were never more than temporarily successful. Sooner or later "exceptional cases" led to underbidding and a general breakdown of the agreement. But during the prosperity and high prices of the Civil War period, agreements to maintain prices seem to have been more successful than was possible later when conditions were more difficult and the number of competitors was greater.

In the depression of the seventies price agreements failed completely. Through a period of "ruinous price-cutting" the master printers were unable to maintain any scale of prices or reach any agreement for their own protection.[9] Almost the only element of stability was found in the union wage scales, but even these were suspended for considerable periods.

During this time when price agreements were no longer feasible, discussion was turning in a new direction. Determining costs of production, proper estimating, and including a fair margin of profit began to be urged as the solution for the problems of the industry. In the earlier days of very simple machinery, wages had been the largest element in costs. In the eighties, however, mechanical development was proceeding rapidly, and printing was increasingly to become a machine industry with large overhead costs. With the rise of importance of overhead costs came an intensification of competition and a growth of interest in possible ways of controlling the problem. Study of costs appeared a promising method. The employers, moreover, were now realizing the need for organization to deal jointly with their problems, to cooperate to prevent price-cutting, and to disseminate information on business matters, as well as to act jointly on labor questions.

Up to this time there had been found no force sufficient to bring into cohesive and lasting organization the numerous individualistic units that made up the book and job printing industry in Chicago. Groups of employers had come together at various times, but only to deal with temporary situations. Discussion of the need for organization was current in the eighties, however.

[8] *Rounds Printers Cabinet*, October, 1876, p. 2; *Chicago Specimen*, January, 1872, p. 3.

[9] *Rounds Printers Cabinet*, January, 1874, p. 4.

The New York book and job printers and the employers in some of the allied trades in Chicago were already organized. The Chicago printers were ready for an organization movement when in 1887 a labor emergency gave the needed impetus. The threat of the nine-hour day, demanded by Chicago Typographical Union No. 16, brought leading employing printers of Chicago together to organize the Chicago Typothetae in February, 1887. In the fall of that year they joined with printers of other cities in organizing the United Typothetae of America. While it required the threat by the journeymen of a national movement for shorter hours to bring the employing printers together permanently, both nationally and in Chicago, the associations lasted, and when the labor emergency was over increasingly turned their attention toward problems of costs, credits, and other matters of business interest.[10]

In the association movement of 1887 the industry was turning toward the second method of controlling competition, by the study of costs. The uncertain state of knowledge as to cost of production was however very apparent. The first cost committee recorded in Chicago was appointed by the Typothetae in 1888, to "ascertain as near as possible the cost of printing." After months of work without arriving at a satisfactory conclusion, the committee reported estimates of the cost of composition and presswork, arrived at by dividing the estimated cost of operating a department for a day by the total number of hours of operation. For presswork a scale was recommended,

> one we should get if we wish our business to be successful and can get if we insist upon it. . . . . The scale is not intended as a combine in any sense, or binding on any member. It is merely information which experience and a thorough canvas of the subject has enabled your committee to give the society.

These reports were recommended to members as a basis for estimating prices.[11] A current journal commented caustically, saying

[10] *Minutes, Chicago Typothetae,* February 14, 1887, and meetings following. The New York society organized in 1862 adopted the name Typothetae. Derived from the Greek roots for "letter" or "type" and "to place," it was applied by Frederick III of Germany to the printers of that country in the fifteenth century.

[11] *Ibid.,* December 6, 1888, October 3, 1889, March 5—June 4, 1891; *Ben Franklin Monthly,* January, 1910, pp. 12, 19.

that the scale had been "accepted—not adopted, as the Chicago Typothetae has a comfortable habit of accepting such suggestions as these, leaving its members free to follow their own judgment." While the cost reports were said to have been used by some firms, and to have proved advantageous to them, they were never generally adopted and put into practice in pricing.[12]

In 1891, a Code of Ethics was adopted by the United Typothetae of America, stating the printers' duty to themselves, to each other, to workmen, and in regard to prices and estimates. On the vital question of prices, the principles that are still the officially accepted ethics of the industry are laid down unequivocally. The fair price, it is agreed, is one that covers all items of cost plus a profit.

> Every printing establishment should have a perfect system of ascertaining the actual cost of every job. It is only in this way that the business can hope to be relieved from the deleterious effects of guess prices. . . . . Never under any circumstances should the minimum cost plus a fair profit be departed from. We should feel here a double restraint; in the first place to cut cost is *foolish;* in the second place it is *wrong.*[13]

Any cutting of prices, then, is unethical. This standard was accepted by the Chicago Typothetae. While it has undoubtedly exerted influence by setting up a criterion of conduct, it is evident that the industry in Chicago as elsewhere considers it rather a counsel of perfection than a practical guide to business action. Prices have continued to be cut in the exigencies of business struggles, in spite of universal lip service in the trade press and on convention platforms to the principle that the only fair price is the cost-plus-profit price.

The long depression following the panic of 1893 proved a serious strain on any such ethics. Price-cutting was widespread in the demoralized industry. The Chicago Typothetae, moreover, although it had in its membership many large plants, had little influence among the many medium and small plants. A movement for a broader organization, started by Typothetae members, met enthusiastic response. As a result the Master Printers' Associa-

[12] *Printers' Album and Electrotyper,* September, 1892, p. 3; *Minutes, Chicago Typothetae,* February 4, 1892.

[13] United Typothetae of America, Code of Ethics, Clauses 5, 7, 16.

tion was organized, with plans to establish a minimum scale of prices for composition and presswork, to promote knowledge of costs and a uniform system of estimating, and to deal with other business problems.

A committee of the new organization, appointed to investigate the reason for differences in bids, made a report on the actual cost of printing which was a surprise to members. In 1895 a set of minimum prices for various types of work was adopted and widely distributed, in the hope of stabilizing prices. But the depression continued. In the winter of 1894–95, to make matters worse, the newspapers changed from hand to machine composition, thus swelling the number of unemployed compositors. A new flock of little shops sprang up to increase jobwork competition. Control of the members of the association was impossible. Although the price lists may have had some influence, the agreements were violated and price-cutting continued. In 1896 printers took a melancholy pleasure in looking at the price lists that they had hopefully agreed to only the year before. Long before the depression lightened late in the nineties, the Master Printers' Association had disappeared, its efforts at price maintenance a failure. The Typothetae had managed to keep together only a small organization which was perpetually in debt and unable to do effective work.[14]

When business finally improved, times seemed propitious for the master printers to better their competitive position. As it proved impossible to secure an agreement on prices within the Typothetae, leaders looked for some other practicable plan. The Board of Trade plan, which was proving effective in reducing price-cutting among master printers in a number of cities, offered a solution of the problem. In modified form it was adopted in Chicago in 1899 by eighteen large plants, all but one of which were members of the Typothetae. Through the new organization, the Master Printers' Association, an agreement was made on rates for large commercial work, based on reports of costs, and on a uniform system of estimating. All estimates were checked by the secretary, a full-time, paid officer, to see that specifications

[14] *Inland Printer*, May, 1894—September, 1896; *Minutes, Chicago Typothetae*, 1895–99.

were uniform and that the standard method of estimating and the agreed prices were used. When a price had been checked, it became a minimum which was protected from underbidding by any other member. On certain periodicals already under contract, which were listed with the secretary, members were protected from underbidding for at least a 5 per cent range in price. No penalties were provided, however. Violations occurred on occasion, but the plan had considerable influence toward stabilizing on a higher level the prices on large commercial work.

The Master Printers' Association later broadened its work to more general educational efforts. Bulletins sent to every book and job printer in the city discussed competitive conditions, reported on average hour costs, and urged the trade to adopt cost finding systems and to follow the prices agreed upon by the Association. As an organization for price maintenance, however, the Association could no longer be successful. By 1906 the number of big establishments which could offer serious competition had increased until it was impossible to exert the control over large contracts that had been feasible earlier. In addition, although there were no penalties for violations of the agreement, the legality of such arrangements began to be questioned. This small group of important competitors during a period of prosperity found considerable success in price maintenance efforts. But as conditions changed their movement was supplanted by a new movement that was to promote scientific methods of cost-finding and by its educational program lay a firmer foundation for general advance in the industry.[18]

Efforts of the employing printers during this period to stabilize the industry by price agreements had little success. A new element that developed during this time, however, the union wage contract, had considerable effect in this direction. Wage agreements by 1896 established a wage scale and the eight-hour day for all machine composition on the newspapers and in leading job houses in Chicago. In 1895 the edition bookbinders, at that time a group of highly skilled and well-organized hand-workers,

[18] *American Printer*, May, 1900, p. 148; *Inland Printer*, December, 1899, p. 401; March, 1900, p. 845; November, 1900, p. 324; January, 1904, p. 586; August, 1906, p. 662.

secured an agreement from the employing bookbinders, who welcomed a uniform wage scale in their efforts to reduce the price-cutting that was ravaging the industry. Whatever tended to make costs plain, they thought, would tend to reduce undercutting of prices.[16] Until the coming in of machines in the edition shops weakened union control over the labor supply, this agreement and a similar one that followed it were helpful.

Another union controlled the supply of blankbook-binders with some effectiveness at this time, and was able to enforce a uniform wage scale. The Chicago Typothetae finally made a contract with this union, in 1903, and agreed to enforce the wage scale uniformly in the plants of all members. The immediate appointment of a committee to arrange a scale of prices for blankbooks indicates what was the chief interest of the employers in this agreement.[17] From 1901 to 1904, in fact, the Chicago Typothetae made agreements with all the local printing trade unions. In this period of rising prices, wage increases were easily met, and uniform wage scales and arbitration agreements seemed advantageous to all as a stabilizing force. In the depression that followed, however, the system of agreements broke down under a series of labor difficulties, and the wage standards with their stabilizing influence were less generally upheld.

The early efforts to improve competitive conditions in the industry had been for the most part attempts to maintain prices by agreement. Such agreements had a limited success in the prosperous years after the Civil War, failed completely in the depression of the nineties when tried on a broad scale, and had some success again with a small group of competitors in 1899 and the favorable years that followed. But in an industry with so great a variety of unstandardized products and so many producers, price agreements proved of very limited utility. They could not withstand the strain of poor times when they were most needed, nor could they reach the mass of printers.

While experience was showing how narrow were the possibilities of price agreements, appreciation of the importance of

[16] *American Bookbinder*, November, 1895, p. 101; January, 1896, p. 165.

[17] *Minutes, Chicago Typothetae*, January 26, 1903; April 30, 1903.

costs and cost knowledge was growing. The Code of Ethics adopted by the United Typothetae of America in 1891 required the printer to adopt a "perfect system" of ascertaining costs. But lacking any generally accepted system, the associations were handicapped by the absence of uniformity in methods among the few plants that were studying their costs. Leaders of the industry saw more and more clearly the need for more fundamental work on costs.

In 1906 the Chicago Typothetae had become a non-union organization, confining its activities to labor matters, while the Master Printers' Association was made up of a few large commercial plants. There was no association that could reach effectively the mass of printers. A group of printers then decided that a comprehensive organization was needed to work on cost problems, making no attempt to fix prices or regulate labor matters. The industry responded to the program, and the new organization, the Ben Franklin Club, grew rapidly among the medium and small printers as well as among the large plants. Within a year a pioneer association leader could say that the club had done more for the printers of Chicago than any earlier organization of master printers. By 1909 there were two hundred members, representing it was said over 80 per cent of the equipment of the Chicago industry.[18]

The study of costs, directed toward the establishment of a uniform cost system, was the backbone of the work of the Ben Franklin Clubs in Chicago and in other cities in which they were established. A cost committee in Chicago, after securing more than four hundred replies to a request for information from plants, reported a set of minimum prices that would give a small profit on various operations.[19] Later it worked out and presented a complete system of cost forms, to be applicable in any office, and the system was installed in a number of offices to be tried out.

The Chicago leaders were influential in calling the First International Cost Congress for Printers, which met in Chicago in

[18] *Ben Franklin Monthly*, August, 1907, p. 12; October, 1908, p. 3; January, 1909, p. 10.

[19] *Inland Printer*, May, 1907, p. 226.

1909, under the auspices of the United Typothetae of America, the Ben Franklin Clubs, and the eastern Printers' Boards of Trade. As a result of this meeting a commission was appointed which in 1910 submitted a standard uniform cost-finding system, based on the Ben Franklin Club system and one worked out by the eastern Boards of Trade. This system was adopted nationally and became the basis of the cost education of the industry.[20]

The Chicago cost committee began early to collect and publish data on average hour costs from the offices operating its standard system. In 1909 it went a step farther. To make all printers study their own costs was proving so impossible a task that the committee decided upon a broader appeal, to reach those without cost systems. The committee said that it did not wish to dictate prices or urge members to do more than ascertain costs, believing that if they knew the cost of their product they would sell at a profit, but it could not refrain from stating what in its opinion would be a fair scale of prices per hour.[21]

The next year the committee went farther in this process of broad education by issuing the *Ben Franklin Price List*, which was to be revised and reissued periodically for some years. Based on actual records of cost and production in Chicago plants, it gave prices for various standard job products, such as cards, letterheads, tags, envelopes, and statements. There was no agreement to adhere to these prices, nor any attempt to enforce them, but with the support of the Club they had some effect upon prices for small job work.[22]

To educate the industry to ask reasonable prices, the cost committee first promoted the standard cost-finding system, and published information on average hour costs. Then to reach the many printers without cost systems they suggested reasonable hour selling rates, and published the Ben Franklin Price List for job work. A final step was taken when the Club voted to recognize in all estimates and charges a uniform cost rate for hand composition, the rate shown as the average hour cost in the first

[20] Leona M. Powell, *A History of the United Typothetae of America* (Chicago, 1926), pp. 76–99.

[21] *Inland Printer*, February, 1909, p. 748.

[22] *Ben Franklin Price List* (1910); *Inland Printer*, April, 1915, p. 107.

quarter of 1911. Notice of the action was sent to every printer in Chicago. The Club could not enforce the use of this rate upon its members or the industry in general, but as part of the process of education in proper pricing the action was useful.[28]

In addition to its work on costs, the Club attacked other problems, through committees on trade relations, insurance, legislation, estimating, and credits. Special groups with common interests organized separately under the auspices of the Club to study their cost problems, and in some cases adopted price lists and trade customs. In several outlying districts job printers organized groups to consider their local problems. The work of the Club was more far-reaching and effective than had been true of any of the earlier organizations.

Nevertheless, division of the industry prevented the most effective educational work. In addition to certain specialized trade groups, there were three main organizations of employers: the non-union Chicago Typothetae; a group of union plants organized in 1909 for collective bargaining; and the Ben Franklin Club with its large membership among small- and medium-sized plants. Discussion was under way for five years before it was possible to agree upon a basis of organization to protect the interests of each group and provide for co-operation in a single organization with a reasonable dues rate. In 1915, however, the old organizations were replaced by the Franklin-Typothetae of Chicago. The open shop and closed shop printers had separate autonomous divisions for full control over their special problems. While controversial labor matters were thus relegated to the groups interested, to be kept out of the main organization, on matters of general interest all could co-operate.

In the prosperous years from 1916 to 1920 the hopes of those who established the Franklin-Typothetae were largely realized. While co-operation was promoted by increasing costs, prices, and profits, membership rose to 500 by 1920. A broad educational program was carried on. Costwork was the basis of activities, following the methods of the Ben Franklin Club. Cost systems were installed, composite statements of hour costs issued, and

[28] *Inland Printer*, May, 1911, p. 268; July, 1911, p. 594.

cost and estimating classes organized. Nevertheless, even at the time of greatest organization, not more than 250 standard cost systems were in operation. As before, a broader educational campaign to reach printers without cost systems was needed as well as cost-finding education. Frequent discussions of competition and price-cutting occurred, in which every effort was made to discourage price competition. After each wage increase notices were sent out suggesting the price increase needed to cover the greater costs. Special groups, organized to consider their problems, in some cases adopted minimum scales of prices. From 1919 to 1921, the Franklin-Typothetae itself issued lists of recommended selling prices for standard operations, based on average hour costs. No penalties were exacted for violations, but with the aid of prosperity and the active organization the lists were helpful in standardizing prices. In 1921, however, because of the complaint of the Federal Trade Commission against the United Typothetae of America, it was decided to publish only average hour costs.[24]

Other types of activities gave service to members during these years. Work on credits and collections, a bookkeeping service, an appraisal service, and the adjustment of problems in the relations of printers to the supply-houses, all were useful. In the meantime the two labor divisions carried on their activities with a minimum of friction. It appeared after five years' experience that a satisfactory way had been found to secure general support for educational work on management problems in an industry divided by labor policy into two opposing camps.

The test of the difficult years beginning in 1921, however, proved too great for this structure. The services of the association to its members were not so vital but that in depression the need for financial retrenchments brought many resignations. In addition, a situation strained by depression, overequipment, and

[24] *Minutes, Franklin-Typothetae of Chicago (1915–1921).* The Federal Trade Commission complaint in 1919 was directed chiefly against the publication of the *U. T. A. Standard Guide*, or price list, and in the fall of 1923 a cease and desist order was issued. The United Typothetae of America, however, had discontinued its publication of prices in 1922. The publication of average hour costs was not affected by the order of the Commission, and was continued (*Typothetae Bulletin*, August 11, 1924, p. 195).

intense competition was complicated by serious labor difficulties in 1921 and 1922, which accentuated the divergent interests of various groups of proprietors. Friction among employers over labor questions, growth of the open shop, competitive advertising on the labor issue, ill-will and retaliation by the use of the cut-price weapon, all led to resignations, financial difficulties, and the final disbanding of the Typothetae early in 1924. The inability of divergent groups to reconcile their opposing interests and co-operate on a common program disrupted the work of years of building an educational program in the Chicago industry. In a setting of overequipment, distrust, and antagonism, and lack of the restraining influence of a trade association, competition then descended to cutthroat levels. A period of disorganization with an intolerable competitive situation followed.

The price of disorganization was so great that in only a few months efforts were begun to rebuild a Chicago organization. In December, 1924, the Master Printers' Federation was started with a nucleus of forty-one members. By 1929 the resentments of five years earlier had considerably faded. The Federation had progressed in the difficult task of re-establishing an educational program, and included more than 150 members, a good representation of the larger plants, and some of the smaller shops.

The greater interest of the employer in the problems of his immediate competitive group than in those of the industry as a whole was recognized in making autonomous groups the basis of organization of the Federation. Three separate groups provide for the large, the medium, and the small printers, while specialized groups such as trade compositors and paper rulers have their affiliated organizations. The groups promote cost-finding in the plants of members and issue statements of average hour costs, adopt trade customs, and act upon any other special problems. The basic costwork is carried on by the Federation staff with the interests of each group in mind.

The Master Printers' Federation, like other associations in Chicago, found it an impossible ideal that every printer should know his own costs. Other education was needed if prices were to be stabilized. Accordingly, a *Cost and Production Record*

Book was published, based on the records of twenty-five members. Members were urged to use the book in estimating prices, either to check or to take the place of their own records. This was followed by the issuance of the *Printers' Red Book*, a guide giving costs on a variety of job products, again based on Chicago records. The *Red Book* was sent to every printer in Chicago, with the suggestion that it be used as a basis for selling prices. By the use of these two books printers without records of their own could profit from the experience of other plants in determining their price policy.

A further step in educating the industry to ask proper prices was taken in 1929 when the Federation voted to urge printers to adopt and put into effect a minimum selling rate of $4.40 an hour for hand composition, and of certain amounts per thousand impressions for job and automatic presswork. These rates, based on average costs, were adopted at group meetings and broadcast to the industry in the hope that printers would take the steps necessary to benefit from the knowledge gained from four years of work on costs. The Master Printers' Federation was a local association, unaffiliated with any national organization. While in 1921 the Franklin-Typothetae had dropped its issuance of recommended selling prices because of the attitude of the Federal Trade Commission, the present association with only local affiliations believed it a permissible means of education to make definite recommendations on prices.[25]

The Master Printers' Federation in 1929 had a sound foundation for education in the Chicago industry, based as it was on group organizations. In addition to the two main branches of its work, the fundamental education in cost-finding and the broader effort to make available to all printers the benefits of the knowledge gained from the study of costs and production in individual plants, it aided members in other ways, such as by selling waste paper and maintaining a credit service. Two weaknesses re-

[25] *Ben Franklin and Western Printing*, January 1, 1925, p. 23; *Galley Proof* (bulletin of the Master Printers' Federation) (1925–29); *Printing*, January 7, 1928, p. 102; May 25, 1929, p. 45; June 22, 1929, p. 34; Master Printers' Federation, *Cost and Production Record Book*, August, 1927; *Printers' Red Book*, January, 1928.

mained, that it was not affiliated with the United Typothetae of America, the national trade association, and that the two local associations, of open-shop and union employing printers, were still outside. Some Chicago proprietors were therefore paying dues to three printers' organizations. It was the hope of leaders, however, that it would be possible to bring all local employing printers' associations under one roof, and secure broader support for the local educational program, while protecting special interests, and at the same time to support the work of the national trade association.

CONCLUSION

In the commercial printing industry of Chicago employers have for nearly a century experimented with methods to protect themselves from undue price competition. The first method, price maintenance by agreement, was of very limited utility in an industry with so unstandardized a product and so many producers. The second method, education in cost finding, was more fundamental. Following the early tentative experiments in cost-work, from 1910 on the fundamental attack on price competition promoted the use of the standard cost system in conjunction with an ethical standard to the effect that the only fair price was the cost-plus-profit price. Yet after more than twenty years of such a campaign in Chicago, in 1929 there were said to be not more than fifty standard cost systems in operation. Some plants operated non-standard systems. A great many, however, were unconvinced of the value of an accurate knowledge of their own costs, and made no effort to acquire or base their prices upon such knowledge.

The orthodox standard of reasonable competition in this industry, that a price to be fair must always cover all costs plus a profit, takes no account of the fact that printing is sold in the market and that market prices are affected by other factors as well as by cost of production. While some printers claim never to cut prices, much more common are those who admit privately a frequent discrepancy between "cost prices" and market prices. Cutting of prices below the level demanded by the price ethics is very common in the slack periods when there is excess productive

capacity. As a practical matter, it appears better to most proprietors to keep plants running and cover overhead and other costs if possible than to refrain from taking jobs unless they pay the full cost-plus-profit price. This being the case, detailed cost knowledge appears useless, or at best not worth its price, to the large numbers of printers who expect to sell "at the market" rather than at prices based on their own costs.

Whether the printer who cuts prices in slack times or the Code of Ethics that decries any price-cutting is wiser from the standpoint of the industry depends upon the elasticity of demand for printing. It is generally held in the industry that the volume of printing at any time depends in much greater degree upon the activity of general business than it does upon printing prices, and that the volume of commercial printing shows little response to price changes. To the extent that this is true, lowering of prices for printing does not naturally increase the amount of printing sold, and for the industry as a whole nothing is gained in slack times by reducing prices to unprofitable levels.

The validity under all circumstances of the standard set up by the industry for fair prices may be questioned. Nevertheless, the theory that knowledge by every printer of his costs would improve competitive conditions is valid. Knowledge of costs promotes more responsible competition, in addition to directing attention to reduction of costs as a possible means of competition. The mass of printers, however, have not adopted the uniform cost system nor accepted in practice the theory of fair prices.

Experience that showed the impossibility of securing study of costs by every plant led to the third program for education in the industry, to make available to the entire industry, as a basis for responsible price policy, the experience of those plants which keep careful records of costs and production. In furtherance of such programs, the Chicago associations have carried on a variety of activities, all in attempts to build up public opinion among the employing printers in favor of maintaining prices at the level considered reasonable, that which affords a profit above cost.

At each period when such campaigns of general education were carried on in Chicago by an active trade association, they

had considerable effect. Individual printers still cut prices when it appeared to be to their advantage to do so. But when printers learn from a reliable source the average costs in other plants, cost of production becomes a larger factor in their minds and tends to set limits below which price-cutting no longer appears advantageous. Moreover, an active trade association by aiding its members on a variety of problems promotes a spirit of co-operation that carries over into the competition in the market. The dissemination of knowledge of costs and selling rates that give a profit on average costs, supported by a general code against price-cutting and a spirit of co-operation through common action on other problems, has proved the most effective way of attacking the problem of price-cutting among the great number of producers in this industry.

It may be asked whether there is danger through these methods that competition will be unduly restricted, to the disadvantage of the public. Such recommended selling prices as those issued by the local association, the Master Printers' Federation, are based upon cost records. Impossible of enforcement, they are merely a means of education. Danger of undue restriction of competition in an industry of so many units is extremely slight, for the ever present potential competition easily becomes actual. The early history of price agreements is evidence of this fact. Unreasonably high prices, although recommended by an association, would meet too much cutting in the market to be effective. The dissemination of information on costs, even to the extent of recommending selling rates based on costs, appears, therefore, a reasonable and useful means of educating the industry in proper business methods.

A possible criticism of such educational campaigns is the emphasis on uniform prices, rather than on reducing costs as a means to reducing prices. Given uniform selling rates per hour on various operations, however, there is still room for variations in plant efficiency to result in variations in prices on the final product. Moreover, since cutting of prices is so common, spokesmen for the industry fear to admit that there is any justification for this practice. They therefore urge the maintenance of profitable

prices based on costs, by the use of uniform selling rates, in order to counterbalance the tendency to excessive price competition.

The Chicago industry, after long experiment, in 1929 has again under way a program of general education, based so far as possible upon study of costs in individual plants, but using the information so secured for a much broader educational effort. Open-shop and union plants are co-operating. A similar program in effect in the years 1915 to 1921 was disrupted by friction over labor issues. In 1929 the two associations of open-shop and union plants are outside the trade association, although many of their members as individuals are members of that association. This division prevents complete support of the trade association. Support of the educational program by all groups is needed, under some plan that will so safeguard special interests and keep controversies out of the parent organization that such a disaster as followed 1921 may not recur. Before the educational program can become as extensive and effective as is needed in this industry of numerous units and divergent interests, the problem of securing general co-operation on business problems in a local industry with a sharp division on labor policy remains to be solved.

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RECENT ECONOMIC CHANGES IN THE UNITED STATES[1]

THIS publication continues the series of studies which have grown out of the president's conference on unemployment of 1921. The first of these was the survey of *Business Cycles and Unemployment* made in 1922–23; the second was a study of *Seasonal Operation in the Construction Industries*, made in 1923–24. *Recent Economic Changes*, like *Business Cycles and Unemployment*, is based on a series of detailed scientific studies made under the direction of the National Bureau of Economic Research, the final report, in each case, being made by a committee of business men and other non-professional students of economic phenomena.

Though the stated objective of the study is "current appraisal of factors of stability and instability," the attention given to unemployment and to fluctuations in business activity is much smaller than in the previous reports. The real objective in the minds of many of the collaborators seems to have been to provide material for the understanding of the whole sweep of economic history since 1921, rather than to analyze the factors which are making for steadiness or variability.

The *Report of the Committee*, which runs to only seventeen pages, consists of a summary of the characteristics of the years 1922–29, analysis of price and wage relationships and the standard of living during the period, and a brief discussion of "economic balance."

The basic survey consists of an introduction by Edwin F. Gay, which places the recent period in its historical setting as a part of the long story of the growth of American economic civilization; twelve chapters by leading scholars dealing with special phases of current economic life; and a closing review by Wesley C. Mitchell, which ventures on the difficult task of identifying

[1] *Report of the Committee on Recent Economic Changes, of the President's Conference on Unemployment*. New York: McGraw-Hill Book Co., 1929. Pp. xxxvi+950.

the ideas and the conditions which pervade the whole series of changes sketched by the specialists and giving these developments a common explanation and a common significance for the future.

That the twelve detailed chapters would be, as a rule, not only competent but distinctive, was assured when the list of co-operators was made up.[2] It may be assumed almost without a check that these writers have used the most complete and reliable data which are available, that they have organized these facts in general with skill and intelligence, and that they have presented their conclusions with the candor of the educator rather than the fervor of the propagandist.

The closing review emphasizes the importance of science and intelligent hard work in promoting material progress, then calls attention to some of the social costs of progress, and closes with a comparison of pre-war and post-war tendencies to stability and instability. Written with Mitchell's accustomed felicity of style and breadth of vision it combines a synthetic view of the contributions of others with a valuable product of the author's own research.

If this review seems to emphasize real or fancied shortcomings of the study, it is because the reviewer assumes that the readers of this journal are more interested in the possibilities of further improvement in the methods of social research than in contemplating the multiplicity of excellences already attained. The shortcomings of the volumes are largely inherent in the plan and particularly in the speed with which the work was accomplished.[3]

In general and with noteworthy exceptions, the studies are more significant as a repository of factual data than as analyses of current trends. Fifteen or twenty years ago it was very generally said that economics was long on theory and short on facts.

[2] Wolman, Kimball, Alford, Thorp, Gries, Cunningham, Gregg, M. T. Copeland, Dennison, Nourse, Mills, Sprague, Burgess, Rogers, M. A. Copeland.

[3] That the research was carried through and the publication brought out on schedule time is a tribute to the organizing ability of those responsible for the planning and management of the enterprise, particularly Mr. E. E. Hunt, secretary, and the directors of the National Bureau of Economic Research.

There was a widespread conviction that the major task before the oncoming generation of economists would be that of accumulating more concrete data respecting the facts of economic life, and that but little advance in theory could be hoped for until a vast amount of spade work had been done. The outcome of this conviction has been a very rapid development of the technique of gathering and presenting factual results and a great accumulation of data and estimates. No nation ever before had nearly as much information about its own economic life as is brought together in these two volumes and in the statistical repositories on which they are in large part based.

Recent Economic Changes, however, raises the question whether the time has not come for a swing of the pendulum in the other direction. It is a commonplace that facts are useless unless we know how to tie them together, and there is great danger that until more thinking has been done about the causal relations and the value elements in the situations so profusely described, the result may be not so much to lay a more scientific foundation for national policy as to furnish illustrative data to be cited in support of preconceived doctrines. Knowledge comes but wisdom lingers.

For example, current thinking about the stability of business is greatly influenced by the generalization that durable prosperity must be balanced prosperity; specifically, that industrial prosperity is dependent upon the fortunes of the farmer. Confronted by this state of mind, it is not enough that economists should furnish an abundance of facts about rural and urban prosperity and leave the layman to draw his own conclusions; the problem is complicated enough to require the services of a specialist in interpreting the significance of the data.

It is not enough to show that in certain cases stock prices have moved upward or downward before business turned in a like direction; the business world is interested in knowing whether the swings of stock prices cause the business changes, only forecast them, or have only an accidental significance. The relations between high wages and buying power; between interest rates and commodity prices; between gold imports, on the

one hand, and interest rates, commodity prices, and business activity, on the other; the relation of hand-to-mouth buying to unemployment; the relation between technological change and unemployment; the causes of the minor recessions of business in 1924 and 1927—all these are vital to any attempt to make practical use of our accumulations of statistical data, and if economists are unable to formulate answers which will stand the test of their own critical analysis the business and political world will proceed to interpret the data in the light of its own less carefully formulated doctrines.

Some of these questions are passed over by the research specialists without consideration; in regard to some others their comments are so dogmatic or so casual as to contribute little to an understanding of the forces which are at work. The *Report of the Committee* displays less caution in generalization than do the chapters contributed by the specialists, and gives evidence that the Committee might have benefited by more theoretical work on the part of the economists.

A good illustration is the theory of the relation between high wages and community buying power. In chapter vii (pp. 523–24) Mr. Dennison sketches very interestingly the rise of the doctrine that "where an appropriate increase in productivity can go along with an increase in wages, the consequent increase in purchasing power results . . . . in increases in the quantities and varieties of goods which can be sold." Mr. Dennison notes that "not many popular beliefs gain such strength in half a dozen years," but he carefully refrains from expressing any judgment as to the soundness of the doctrine. The Committee, however, indorses it without qualification. Says the *Report* (p. xiv)

> they [the leaders of industrial thought] were quick to grasp the significance of the power of the consumer with money to spend to create an accelerated cycle of productivity. . . . . This principle has since attracted the attention of economists all over the world and while it is in no sense new, its application on a broad scale is so novel as to impress the committee as being a fundamental development.

Nowhere in the volumes do we find a real analysis of the question thus raised. An old-fashioned economist would comment that if the income of a business is not disbursed through

high wages it will be disbursed in some other way—through increased distribution of profits, increased investments in new plant, charities, or reductions of prices charged to consumers—and that the way it is disbursed makes no difference in the amount of purchasing power available to buy the total of the products of industry. It is too bad that a new principle so novel in its application as to impress the Committee as a fundamental development, which involves a break with the tradition of economic theory, could not have been treated critically somewhere in the volume.

Again, the Committee finds that the development of "mass services," that is, the accelerated growth of service industries, has afforded employment for millions of workers crowded out of agriculture and the extractive and fabricating industries, and thereby saved our country from a critical unemployment problem. One wonders if none of the economists on the staff had an opportunity to ask the Committee whether if these mass services had not been rendered the purchasing power which is paid out for them might not have been expended for the products of agriculture and the fabricating industries and thereby prevented or reduced the necessity for these millions of workers to find employment in the service industries. That workers shift out of the older industries into newer ones in response to shifting demand is hardly proof that they would have shifted out anyway if the change in demand had not occurred.

Again, the *Report* tells us that the survey "has proved conclusively what has been long held theoretically to be true, that wants are almost insatiable." While the reviewer knows of no one who questions this principle in the abstract, he is unable to see that the survey proves it. It does show that there has been a considerable increase of production and of consumption and also a shortening of hours of labor, and probably a decrease in the proportion of population gainfully employed. If it proves anything about the satiability of human wants, it seems to show that we have reached the point where we do not want more goods badly enough to work for them as hard as we have worked in the past. Of course, if leisure is included among the objects of human want,

it is a truism to say that wants are insatiable; any possible line of conduct would be an evidence of the insatiability of desire either for the products of labor or for respite from labor.

The addenda to the *Report of the Committee* include a short section referring to the findings of the predecessor committees on unemployment in which occurs the astonishing statement that "the *Report on Business Cycles*, as the present survey shows, has exerted an important influence toward reducing the extremes of cyclical fluctuations." Whether the survey shows that the extremes of cyclical fluctuations have been reduced, we shall consider presently; but certainly it does not evaluate the report on *Business Cycles and Unemployment* as a factor in bringing about such a reduction.

The addenda also include a number of suggestions for the improvement and extension of statistical information, such as better classification and analysis of statistics of occupation; more details regarding employment, pay-rolls, earnings, and hours of labor; more elaborate price statistics; greater accuracy and representativeness in statistics, and so on. Curiously, there is no suggestion for the collection of direct information on unemployment, although this was a major recommendation of the *Report on Business Cycles and Unemployment*, and an appropriation for this purpose was recommended by the Senate Committee on Education and Labor as a result of the series of hearings on the unemployment problem last winter. To the reviewer this seems a more important need, especially from the standpoint of this particular investigation, than is reflected in any of the suggestions for further statistical work which are made.

The treatment of transportation and communication is one of the least satisfactory sections of the book. Chapter iv, "Transportation," consists of Part 1, "Railways," by Professor William J. Cunningham, and Part 2, "Shipping," by E. S. Gregg. There is no discussion of the development of air transport, nor is there any consideration of developments in communication, either in this chapter or elsewhere in the book. Commercial radio is ignored. Motor-vehicle transportation, which is handled under the caption "Motor Vehicle Competition," is treated solely from the point of view of its effect on the railways.

Professor Cunningham assumes without argument that recent increases in the ratio of funded debt to total capitalization of railways have been due to the impossibility of selling stock, though many bond sales have been made by railroads whose stocks were above par. In other lines of business the ability to sell bonds is usually considered an evidence of strength, corporations finding it more economical to borrow as much as they can rather than to sell stock (except in such extraordinary markets as that of 1928–29).

Professor Cunningham also attributes the high interest rates paid by railways in 1920 to the unsatisfactory net earnings without the slightest reference to the money-market conditions which made it necessary for all borrowing businesses to pay extraordinary rates at that time. In fact, at that time, as at nearly all times, the railroads were able to borrow at as low rates as were accorded to any large industry. The ability of the railroads to borrow money profitably at higher rates than the average return on their existing capital is clearly explained, but the explanation is followed by the quite unsupported generalization that "the present policy of betterments cannot long be continued on an average return of 4.3 per cent on the whole."

The section on shipping is written almost entirely from the standpoint of the profits of the shipowner. For example, Gregg condemns the United States' policy in maintaining a government-owned merchant marine, not because of the economic losses the policy has involved, but because of the effect on the profits of private shipping companies. The general conclusion seems to be that the government should get out of deep-sea commerce, where there is an opportunity for profit, but cultivate the field of inland transportation, where losses are in prospect. The Mississippi River and Warrior River enterprises are discussed in terms of the amount of traffic handled, not of the financial results; the losses which have been involved are only hinted at in the cryptic sentence: "The government has borne the expense of the experimental stages of development but if the waterway experiments by the government prove a success, private capital will probably enter this field of transportation."

The reviewer's most serious criticism of the book relates to its tendency to put a heavier load on the statistical data than the probable accuracy of the estimates will permit. It is not that greater accuracy is actually claimed for the data than they possess, so much as a propensity to forget the qualifications before completing the discussion. The authors are modest enough concerning the limitations of their material, but there seems to be an assumption that all the information we need must be squeezed out of the available figures, and when application is undertaken it is assumed that the best that can be gotten must perforce be good enough. This is, of course, the only proper attitude for the administrator, whether in business or in public life, but it is not the task of the scientist to make something out of nothing, merely because something is needed. The two most conspicuous cases are, first, the treatment of unemployment by Givens, Wolman, Mitchell, and the Committee, and, second, the farm-income data as compiled by Morris A. Copeland and interpreted by Mitchell.

The popular notion that there has been a notable increase in the amount of "technological," as distinguished from cyclical and seasonal, unemployment is nowhere subjected to scrutiny, but the tone of all the comments is such as to raise no question as to the correctness of the current view. What the data cited show, however,[4] taking them at their face value, is a constant unemployment rate for boom years of about 5 per cent (5.1 in 1920, 5.2 in 1923, and 5.2 in 1926) with considerably higher figures for the bad years (15.3 in 1921, 12.1 in 1922, 7.7 in 1924, and 6.3 in 1927), but no evidence of a growth of the unemployment rate over the period. True, there is, as Mitchell emphasizes, an increase of 650,000 in the unemployed from 1920 to 1927, but that may well be a cyclical, rather than a secular, change.

It seems to the reviewer, moreover, that the margin of error in the employment data (compiled by Givens for Wolman's chapter on "Labor") is so great that it is unjustifiable to cite them as evidence of anything. The difficulty is that the figures for unem-

[4] See table, p. 875.

ployment are residuals, obtained by subtracting one set of estimates (employment) from another set of estimates (persons attached to the industries). Obviously, if residuals thus obtained are small in comparison with the items from which they are derived, the margin of error in the residuals is proportionately far greater than in the basic data.

Appraisal of the validity of details of the methods used is difficult because the conclusions rest heavily on unpublished results of King's investigations. The situation seems to be that we have a significant amount of information about the number of persons attached, year by year, to agriculture, and know a good deal about the number actually employed in manufacturing, railway transportation, coal-mining, and a number of smaller groups; but we have no direct information about actual employment in the mercantile and miscellaneous groups, which make up a third of the number of employees attached to non-agricultural pursuits, and there is no major group for which we have any real knowledge of both number attached and number employed for years more recent than 1920.

Consequently, the figures for "number attached" are computed from data as to population, school attendance, and migration from the farm, assumptions being made to breach the gaps. The number attached to mercantile and miscellaneous groups is built up in part by dividing between them those who could not definitely be placed elsewhere. This would not be serious if we could feel sure that the numbers withdrawing from agriculture and from manufacture are a sufficient basis for inferences as to the number seeking employment elsewhere. If, however, the rising standard of living of the population has taken the form of earlier retirement, less industrial labor of women, or later entrance on a definite employment career, we shall have no definite evidence of it until the 1930 census figures are available.[8] Such an increase in the "consumption of leisure" might easily wipe out the entire estimated increase in unemployment since 1920.

[8] Except as later entrance on a career is reflected in the heavy increase in the number of students which is taken account of in the computations.

More serious doubt attaches to the figures for actual employment used as a subtrahend in computing unemployment. For railway transportation and for coal-mining, we have fairly complete records, and for manufacturing we have data from the biennial census of manufactures and a large monthly sample from the Bureau of Labor Statistics. The downward bias in the Bureau of Labor Statistics index which has been revealed in every biennial census is a warning that even large samples are treacherous, but in other fields much smaller samples have had to suffice.

No explanation is given of the way in which the figures for persons actually employed year by year in mercantile and miscellaneous pursuits are obtained, though it is stated that the figures of unemployment in these groups "are the least reliable of all and are probably much too low." So far as the tables indicate, the number of mercantile and miscellaneous lines for which any information was available as to actual employment by years is so small as to afford no basis for an estimate. An error of 7 per cent in the number actually employed in these lines would equal the entire increase in unemployment shown for 1920–27.

Finally, it is to be noted that the method which has been used in computing unemployment is such as to throw into the unemployment figure all unpaid absenteeism, at least in manufacturing and mining pursuits, whether due to sickness, to voluntary choice, or to lack of work.

The other very doubtful statistical point is the treatment of the income of the farm population. Copeland submits two calculations, one a computation of farm income for 1927, the other a set of estimates of agricultural realized income for 1913, 1914, and 1918 to 1925.[6] The first includes only income from agricultural operations, deducting interest and rent, even when paid to other farmers, and paper loss due to falling land prices. The second omits the deduction for land-price changes and includes income of farmers from non-agricultural investments. The first works out at about $4,743,000,000 for 1927;[7] the second works out at $8,143,000,000 for 1925.

[6] A number of the items are carried through to 1927.

[7] Net profit to owners plus wages and salaries is $6,903,000,000 if the loss from change in property value is omitted.

In connection with the first estimate, exception must be taken to the inclusion of the loss from change in land values (even though Copeland gives an alternative result obtained if it is omitted). This is not loss realized on farms actually sold but a theoretical loss on all farms based on changes in prices per acre of those which changed hands. The theoretical objections to the inclusion of such an item would be very serious even if the statement were headed "accrued income" instead of simply "income." Quite apart from the general question of theory, moreover, the computation in this case is misleading, for three reasons:

First, the loss is evidently calculated on all farm values instead of only the farms operated by owners. Rent to the extent of $1,400,000,000 is deducted as an expense to operators; one cannot properly do this and also deduct loss to landlords from shrinkage of land values. Second, no account is taken of the well-known fact that a considerable share of the loss from the shrinkage in land values since 1920, has fallen, not on the landowner, but on his creditors. Third, the price quotations are not a good sample of land values. Ever since 1920 the turnover of farms has been slow, and an abnormally large proportion of sales have been distress sales. Changes in the figures from year to year have been due largely to changes of policy on the part of creditors in nursing frozen credits or forcing liquidation, rather than to changes in the income-producing value of the investment.

The allowance for rental value of farm homes, $161,000,000, looks incredibly small, unless a very large proportion of the tax and interest expenditure has been allocated to dwelling-houses. As it stands, the item represents only about $5.00 a month for the farmhouses which have telephones, if all the rest were written off as worthless.

Finally, in arriving at the "profit" of farming, 6 per cent is allowed on the market value of owners' equity.[8] The effect of this calculation is to make a current charge against agricultural operation for the whole speculative capitalization of anticipated increments. Rental values, rather than interest on market capital-

[8] Stated in the tabulation as 4½, but referred to on page 783 as 6. The latter figure checks with the Bureau estimates of value of operators' investments.

ization, constitute the proper basis for calculating land use costs, if the latter are to be considered at all.[9] Finally, it does not seem safe to say that "the deficit in most of the immediately preceding years was undoubtedly greater than in 1927." Prices of farm products were much lower in 1927 than in 1925 or 1926, and the index of farm real estate values dropped faster in 1927 than in any year since 1922.

The second calculation, that of the "current income," is not open to the criticisms just made, but is not explained in sufficient detail to make it possible to check its soundness. The reviewer's only criticism relates to the omission of non-agricultural income of the farm population. Copeland notes that "no estimate for income from trucking and other non-agricultural work is included, but some of the included wage income goes to persons not a part of the farm population." The point is of more significance than this seems to imply. In some sections of the country, farming is far from being a full-time occupation. A very substantial addition to the income of the farm population comes from such activities as lumber-cutting, the manufacture and transportation of intoxicants, mining, fishing, entertainment of tourists, sales of gasoline and miscellaneous supplies, keeping summer boarders, working on public highways. Oil and gas royalties are largely paid to farmers. For 1918–20 Knauth estimated on the basis of a "few small samples" that this item ran somewhere between $250,000,000 and $750,000,000. It must have increased greatly since that time with the expansion of highway expenditures and the increase in tourist traffic.

Moreover, no account is taken of the fact that the farm population includes members of farmers' families and others who are regularly occupied in non-agricultural pursuits. Many, probably most, rural school teachers live on farms, as do many miners. With the development of better roads and the popularization of the automobile, there has been an increasing opportunity for members of farm families to engage in industrial activities without leaving home, and there is apparently some tendency for in-

[9] In 1925, forty-four counties in Iowa reported cash rents averaging 3.4 per cent of the market value of real estate.

dustry to move to rural districts to utilize such labor. (Compare the discussion of the migration of manufacturing, I, 210–14.)

The conclusion reached in this calculation is startling—that in 1925 the income of the farm population was only $281 per capita, as compared with $712 for the entire population of the country. Copeland draws no unwarranted inferences from these figures, but Mitchell's use of them seems to the reviewer likely to lead the reader to overrate the significance of the spread. Copeland notes that living costs are higher in the city (a point which needs emphasis if the rent of farm homes has been taken into the income at the rates indicated in the computation for 1927 already discussed); he also notes that in the country housewives' services replace services which must be paid for in money in the city. If deflation for price changes is necessary for comparisons of one year's income with that of another, it is equally necessary to deflate for price differences in comparing the income of one region with that of another. Mitchell's only qualification is that the comparison shows nothing of the financial entanglements into which farmers were drawn in the flush years, "a man may make as good a current income now as before the war and still be far worse off if he is carrying a greatly increased load of debts." (Apparently, however, interest on debts has been deducted in computing the current income.) It should be noted also that since these are per capita figures the comparison is affected by the larger proportion of children in the rural population.

In summarizing the position of agriculture, Mitchell calls attention to the fact that the not unfavorable income comparison which 1925 makes with pre-war years is due to the use of shrinking per capita figures for farmers and swelling per capita figures for the total population (the number of farmers having decreased while the total population increased). "An industry which keeps up its per capita quota of the national income because thousands of workers withdraw from it cannot be regarded as flourishing." With this may be contrasted Galpin's judgment, quoted by Nourse (p. 594):

> The loss [of farm population] is in large measure a product of natural conditions which do not necessarily indicate that agriculture is a declining business but which is quite compatible with its progress in prosperity. . . . . As a matter of fact, it is a sign of progress when a given economic result can be achieved with fewer workers.

The criterion of national prosperity is not the prosperity of individual industries, but the well-being of the population. If agriculture can give up so many workers that those remaining can attain a progressively improved standard of income, and if non-agricultural industry can absorb the emigrants from the farm at a steadily advancing real wage scale, the process gives little occasion for mourning.

One other item in the review section may justify a counsel of caution. This relates to the comparison of the pre-war and the post-war instability of business, a point to which reference was made in connection with the *Report of the Committee*. Mitchell presents a considerable mass of detailed analytical material on this subject, including a graphical comparison between the 1924–27 cycle and the average of from seven to fifteen pre-war cycles for each of eleven series of economic data. The evidence shows clearly that with reference to nearly every one of these series the 1924–27 cycle was more moderate than the pre-war averages, though most readers will be surprised that the difference is not greater. Interestingly enough, the only series with a fluctuation exceeding its pre-war average is wholesale prices—a commentary on the current idea that prices have been stabilized through the use of financial mechanisms.

The importance of this contribution to our knowledge of the character of American business cycles is not questioned. It is difficult to see, however, that it affords adequate support for Mitchell's generalization that "to the recent economic changes described in the preceding chapters we might add another accomplishment [that the amplitude of cyclical fluctuations has been reduced]," or the more sweeping statement of the *Report of the Committee* that "no serious cyclical fluctuations have characterized the period under review."

When a large number of cycles are compared, it is inevitable that some will display a range of fluctuation below the average.

If the most recent happens to be below the average, or even to be the mildest of the lot, this is hardly of itself ground for believing that real progress has been made. The phenomenon of a cautious business spirit and mild fluctuations in business following a severe crash is not a new one—witness the mildness of the upswings which culminated in 1895 and in 1913. A comparison of the whole period 1922–28 with 1909–14 and with 1899–1906 would be more illuminating than a comparison of the single cycle 1924–27 with an average which includes 1907 and in most cases 1893. The evidence seems hardly to warrant even so cautious a generalization as Mitchell's respecting the genuineness of our supposed achievements in the control of business activity.

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BOOK REVIEWS

Select Statutes Documents and Reports relating to British Banking 1832–1928. Selected, with an Introduction, by T. E. GREGORY. London: Oxford University Press, 1929. 2 vols. Pp. lx+147; and vii+391. $7.50.

Nothing short of a revolution in English legal history was accomplished by the toil of Maitland in the documents of the Middle Ages. It was from a foreigner, Vinagradoff, that "he first received a full consciousness of that matchless collection of documents" which England had consistently neglected, but which enterprising American scholars had already begun to use. A revolution is not to be expected in the history of money and banking. Professor Gregory has, however, rescued the "jungle of blue books and Parliamentary discussions, pamphlets and tracts and leading articles" (Introduction, p. ix) in monetary history for English scholarship, when there were already indications that it would be appropriated by foreigners. Richness of learning has been modestly revealed in "Introductions" to economic literature before, but none has surpassed the present Introduction by Professor Gregory in command over a staggering mass of material. The selection of documents by the exercise of the editor's expert judgment makes the volumes of manageable proportions. An explanatory essay, which is the form taken by the Introduction, makes it still easier to use them, and the prospective reader will profit more from a review centered upon that, than from a series of perfunctory citations from the collection of sources. This is especially true since Professor Gregory's style is not an easy one.

The documents date from 1832. The editor's original intention was to write an accompanying volume "covering the rise of British banking and the vexed era of the Restriction and the Resumption of Cash Payments" (p. ix). We shall only be reconciled to the change in plan if we may look forward to the ultimate appearance of this sorely needed volume. Indeed, Professor Gregory has already allowed us to taste its flavor in his Introduction to Tooke and Newmarch's *History of Prices*—an essay in many ways complementary to the present Introduction, and one to which the author could with advantage and in

all modesty have referred his readers. May we add that it would be a great boon if Professor Gregory or the publisher would see fit to follow the precedent of the earlier essay and publish this one separately?

The material is arranged neatly in four parts. The first, from 1832 to 1844, exhibits the controversies prior to the Acts of 1833 and 1844 through the medium of extracts from the evidence of the Bank Charter Inquiry of 1832 and the Select Committee on Banks of Issue of 1840–44. In addition, the acts themselves and the correspondence between the government and the Bank in 1844 are reproduced. The second part deals with the Bank of England from 1844 to 1907, as seen in petitions, correspondence, evidence before committees, and comments from the press. Public opinion on the vexed question of the deportment of the Bank in crises is the leading note. Part III is devoted to the development of joint-stock banking after 1836, beginning with the report of the Secret Committee of that year. The reprints include the acts passed between 1844 and 1879 which constitute the Joint Stock Banking Code and determine the corporate form of the banks; the views of the *Economist* on limited liability for banks; and the evidence of Crake and Bagehot before the Select Committee on Banks of Issue—the last inquiry into private note issues. The final part begins with 1910, and the Bank of England immediately before the outbreak of war is described by extracts from the well-known *Senate Document* prepared by the National Monetary Commission. The tale of the war and post-war periods is told by the acts, the report of the Treasury Committee on Bank Amalgamations (1918), the Cunliffe reports, the Treasury minute on the circulation of currency notes (1919), and the report of the Committee on the Currency and Bank of England Note Issues (1925).

The theories and practices with which this collection of material is concerned are ably described by Professor Gregory. By 1832 the Bank of England had so far come round to the Ricardian views as to concede that the foreign exchanges should be an indicator in the regulation of note issues. The professed principle of the bank had been to keep the securities item steady and to let the action of the public affect the note circulation in accordance with the inflow and outflow of bullion (p. xi). In practice, however, from 1829 the policy of evening the flow of funds between the market and the Bank at the cost of fluctuations in the holdings of securities was deliberately developed. As Professor Gregory points out, 4 per cent was virtually a maximum rate of discount up to 1844 (p. xxx). Opinion had not developed to the

extent of calling for the full exercise of the discount rate as a weapon of control. On the whole, practice was in advance of theory. The Secret Committee of 1832 made no recommendations to restore the alignment between principles and practice; and the Act of 1833 left the general position unchanged. The chancellor of the exchequer justly pointed, in 1840, to the continued absence of "agreed first principles" (p. xvi). A central bank existed, but the idea and the principles implied in it were not grasped, nor was discussion focused upon them. Even the Act of 1844 was the outcome of the attempt to solve practical difficulties rather than of any body of monetary theory. Confusion in ideas leads to unsatisfactory precepts, and from 1832 onward the Bank's professed rules of action were *de facto* neglected.

Yet an issue of principle may be said to have existed behind the discussion of detail before and after 1844, namely, "the validity of enlightened self-interest as a guide to right note-issuing policy" (p. xx). The Currency School favored the act because they wanted to provide for the deliberate contraction of the currency in the early stages of expansion before a strain was felt. Their ideal was thus the "managed" currency, and it is not surprising that Professor Gregory can show them later stressing the rate of discount as a means of control, even if it were paradoxical in the light of other parts of their argument (p. xxxii). The situation was complicated because it took time to sense all the theoretical implications of the discount weapon. When the Act of 1854 swept away the vestiges of the Usury Laws which remained after the Acts of 1716[1] and 1833, that may be said to have indicated the clearing of minds. This is presumably why Professor Gregory reprinted the repealing act. In the forties, the principle guiding the note-issuing policy was too easily lost in the discussion of the "means and technique to attain the end" (p. xxiv).

The one gap in Professor Gregory's Introduction shows itself at this point. The student will look in vain for a statement of the position of the opposing Banking School even as succinct as that of the Currency School. Perhaps the defect is inevitable, because as Professor Gregory has pointed out in another place, "the history of doctrine . . . . is made difficult by a very simple fact. What *are* the doctrines of the Banking School?"[2] It helps the student to be told so much.

The author's verdict on the Act of 1844 is that it not only fell short

[1] H. D. Macleod, *Theory and Practice of Banking*, 3d ed., II, 418.

[2] *An Introduction to Tooke and Newmarch's A History of Prices* (P. S. King and Son, Ltd., 1928), p. 80.

of the hope of the Currency School in getting rid of fluctuations in the trade cycle but actually increased them. Yet the act was not useless. It probably made the Bank's policy sounder than it otherwise would have been. Only gradually was it realized that the Act "did not provide an automatic protection against unsound banking policy" (p. xxvii).

With the changing conditions in the banking world the Bank of England changed its outlook. It learned "the art of adapting its reserve policy to the exigencies of the Bank Act, not by the accumulation of vast reserves, but by a manipulation of its securities, so as to make the Bank rate effective" (p. xl). The new policy was reflected in the discussions of the bank rate. Instead of being discussed mainly in relation to the Usury Laws, as was the case before 1844 (p. xxx), its efficiency as a means of control over monetary conditions became the burning question. Again practice did not await theory—it was rather theory's handmaiden.

The rapid development of joint-stock banks reflected the changing banking conditions. Professor Gregory shows how quickly the power of the new banks was recognized. At first there was opposition based upon arguments which showed complete forgetfulness of Adam Smith's admission of banking as a sphere for the application of the joint-stock principle. Of the important people only Vincent Stuckey was an exception; and he appears to have been willing to grant them limited liability, a privilege which was not available to them until 1858. It is either a tribute to bankers' respect for public opinion or else a mark of their conservatism that up to 1879 many of them did not avail themselves of the permission in the Act of 1858 (p. xlviii). It took the dire consequences of the failure of the City of Glasgow Bank in 1878, with its unlimited liability, to drive home the advantages of limited liability.

Commercial banking, in Professor Gregory's judgment, remained "relatively immune from interference by the law." If anything, legislation was detrimental in its effects and it missed its chance in not "insisting upon adequate publicity" (p. xlix). The underlying economic forces drove the banking system to develop along three lines: the elimination of private bankers, the increase in the size of the unit, and the creation of branches. The interconnection of the three is obvious. The more the commercial banks made of themselves a system, the more powerful and independent of the Bank of England they became. Opposition to their growth by the Bank or by any other institution lost its meaning. Much minor controversy was thereby wiped out and the

greater problems which go to the heart of banking theory could stand out.

Professor Gregory shows clearly how practice may be remote from theory. Perhaps it is in the nature of things that men in the bustle of affairs cannot stop to scrutinize the principles upon which they act. In this respect the men of the twentieth century seem to be no different from those of the nineteenth—although the issues are more clearly before them. Writing of the gradual use of war-time legislation as "an engine of inflation," Professor Gregory expresses his doubts "whether at any time during the war the responsible authorities were fully aware of what they were doing" (p. liv). Nor would it appear that the discussion in the post-war period was more rigidly centered upon the problem in hand than in previous controversy, for the Act of 1928 which temporarily at least ends "the long effort to amend the Bank Act of 1844" (p. lx) was passed without the Committee of 1924–25 giving consideration in its report to the question of amalgamation of the note issues, although it had been included in the terms of reference (p. lviii).

Manifestly these volumes are for reference—to be dipped into, rather than for continuous reading. That "tone of economic life, the temper of an age," which Professor Gregory sees as an important secondary fruit to be picked from the material, is exhibited by the later as well as by the earlier documents. Historians with insight have for all time the means to reconstruct the skein of monetary thought. The high praise which must be accorded Professor Gregory's introductory essay is a tribute to his own insight. His sympathetic spirit is indicated when he confesses that "the language in which economic concepts are clothed has varied more, perhaps, than the concepts themselves": and only that spirit can lead him to the commendable conclusion that "conflicts in the sphere of banking policy have revolved round a relatively restricted number of central ideas, but it is only by becoming familiar . . . . with the diversity of phrase that one comes to realize the real identity of content" (p. x).

REDVERS OPIE

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Alfred Weber's Theory of the Location of Industries. Translated from the German with an Introduction and Notes by CARL J. FRIEDRICH. Pp. xxxiii+256. Chicago: University of Chicago Press, 1929.

The belated appearance of this English translation of a little book that appeared in Germany in 1909 is of much greater significance than

is ordinarily indicated in such circumstances. Apparently it had only begun to attract attention in Germany when in 1914 the interest of economists was diverted from such problems. But in the last decade this book has been the source and center of an active study and of an animated discussion. It has come to be referred to as the crowning scholarly achievement of its author.

A few students in America had kept somewhat in touch with this movement through the German economic literature, but the most widely serviceable notices of it were given to American readers in 1927 and 1928 in two most informing articles in the *Journal of Political Economy*.[1] The valuable result that may be expected from the publication of this translation is the stimulation of further studies here in the field of this important but relatively neglected subject.

The article in this *Journal* by Dr. Andreas Predöhl on the theory of location in relation to general economics made accessible to the readers of this *Journal* what was substantially a prepublication review of this book by a scholar thoroughly conversant with the German original and himself one of the most competent students of this comparatively new subject. Referring to that article for a substantive treatment of the contents of the book more satisfactory than anything the reviewer could hope to present within the present limits of space, we may add only a few words of comment.

In approaching this book the reader must be prepared to meet a very abstract treatment and some very heroic assumptions. The author apparently decided a priori that in the problem of location the dominant rôle *must* be played by transportation costs, and he thereupon proceeded to transmute all other costs into terms of imaginary or equivalent freight charges, and freight charges in turn into physical terms of tons and of distance in miles. Thus the complex cost factors determining the location of a factory are either ignored or reduced to a form that may be shown in geometrical figures and explained in physical terms of the parallelogram of forces. Such questions as the comparative richness of deposits of ore and of fuel or the relative expense of exploiting them, are summarily disposed of by declaring that these simply are the equivalent of so much more-or-less cost of freight and therefore may be graphically represented as greater distances over which the materials and the products must be carried. Thus the author's "locational figure," showing graphically the points where materials, fuel, factory, and consumption are located, shows them all where they are *not* located on

[1] XXXV, 278 ff., by W. Krzyzanowski, and XXXVI, 371 ff., by A. Predöhl.

a real geographical map; the "locational" element is mainly imaginary, being really an allegorical version of monetary costs. This is removed still farther from reality (certainly in application to American conditions) by the assumption that all ton mile freight charges are uniform, regardless of the form, bulk, value, perishability, differing speed required, etc., in the transportation of the materials and finished products. Inevitably, therefore, Dr. Predöhl in making his diligent and intelligent study of the location of the steel industry in the United States found that these features interfered "with a direct explanation of problems of location in this country by Weber's theory."[2] Another equally heroic assumption unnecessarily removing the theory from reality is that all consumption is located at a single point. It is rather a normal condition in the case of modern mass production that the factory is near the center, from which shipments radiate in all directions to consumption points throughout the tributary area (see the reviewer's "Economic Law of Market Areas," *Quarterly Journal of Economics*, May, 1924).

German students and sympathetic critics of Weber's theory have already perceived that the theory of location is but one aspect of the complex analysis of the modern price system, and it is along the line of that conception that further advances in this field are to be expected.

The translator has done his work faithfully and well, and has added a scholarly introduction, mostly relating to Von Thünen, whose relationship with this subject and influence upon its treatment is felt far more by German readers than it can be by Americans.

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De omloopssnelheid van het geld. By M. W. HOLTROP. Amsterdam: H. J. Paris, 1928. Pp. 215.

Of the few monographs on the velocity of circulation of money, this is undoubtedly the best and most comprehensive. Mr. Holtrop, while displaying a remarkably wide knowledge of monetary and general economic literature, old and new, in five languages, shows a clear appreciation of the relevant and avoids any unnecessary digression.

The first seventy pages are devoted to a historical survey. He begins with Petty, Locke, Cantillon, and continues up to the present day. His aim is not so much absolute completeness, as the elaboration

[2] *Op. cit.*, XXXVI, 389.

of the leading principles. There are first those writers, e.g., Carl Menger, who reject the concept of the velocity of circulation altogether. Second, there is the non-monetary theory that the velocity of circulation of money is only the reverse of the velocity of circulation of goods as held, e.g., by Marx. Mr. Holtrop shows convincingly that both views are untenable (pp. 29, 43, and 169).

He then distinguishes between what he calls "The Movement Theory" *(Bewegingstheorie)* and "The Cash Reserve Theory" *(Kassaldotheorie)*. The adherents of the *bewegingstheorie* follow the movement of each banknote and coin, they count the number of times it changes hands and call that the velocity of circulation. They are inclined to conceive of the velocity as an inherent quality of money. Money supply is the product of quantity and velocity. The "money requirement"[1] is determined by the volume of trade (goods to be transacted) and the velocity of circulation of money, in the same way as the demand for freight space is determined by the volume of goods to be shipped and the speed of the vessels (pp. 10 and 28).

The *kassaldotheorie* concentrates upon the money held by individuals and firms at a given moment of time, the quantity of which depends not on the velocity of circulation of money but on economic motives of the holders. The money requirement is the sum of the cash requirements of the individuals and velocity of circulation is the quotient obtained by dividing the volume of payments (money stream) by the average cash holdings (money in circulation). The velocity of circulation is determined by the cash requirements and not vice versa. It is not, as the *bewegings* theorists argue, a quality of the money supply, but concerns the demand for money.

It seems to me, however, that Fisher is right in contending that there is only a formal difference between the two theories, for an increase in the ratio of total payments to money in circulation means *ipso facto* that some coins or notes have changed hands more frequently. Mr. Holtrop categorically denies, however, that the two theories are equivalent. He prefers the *kassaldotheorie* as the better instrument for causal analysis, although he admits that both methods necessarily yield identical results. Alterations of the velocity of circulation are always the result of those factors which determine the size of the money stream and are not caused independently (p. 111). "There are however changes in the size of the money stream which are unim-

[1] There is no good English term for the Dutch *geldbehoefte* and the German *Geldbedarf*.

portant for our problem, [the exchange value of money] because they are automatically connected with a corresponding change of the commodity stream." If a productive process, which was formerly performed by one firm, is split up in several stages, money has to change hands more frequently, that is to say the money stream will be increased, but at the same time the commodity stream (volume of trade) has grown too (p. 111).

> We may call that . . . . a change in the coefficient of specialization i.e. the number of times a commodity has to change hands on the way from production to consumption. Insofar as changes of the velocity of circulation are due to a change of this coefficient, they have no bearing on the problem of the purchasing power of money (p. 112).

Here Mr. Holtrop does not express himself happily. He does not in fact hold that an increasing specialization of production has no influence on the price level, but rather that, because the demand for money has increased, the price level will fall, unless the increasing demand for money is offset by an increase in supply, either by an augmentation of the stock of money or *by a more rapid circulation* (revealing incidentally that it is sometimes useful to conceive of the velocity of circulation as a supply factor, as the *bewegingstheorie* does).

The really decisive factor is, according to Mr. Holtrop, "the intensity of the utilization of the circulating capital" *(vermogensaanwending)* by individual firms, i.e., the ratio of their average cash reserve to their money turnover, which is a problem of financing. This ratio is in turn determined by the regularity or irregularity of income and outlay. In chapters vi and vii, which constitute the most original part of the book, the author discusses in detail the circumstances on which the continuity or discontinuity of income and outlay depends, the covariation and countervariation in the cash requirements of different firms, the influence of different types of terms of payments, and the effect of the use of all kinds of credit instruments (if they do not simply constitute an addition to the money stock, as, e.g., bank deposits). Although some detailed criticism of these chapters suggests itself, the main arguments seem to be sound and very illuminating.

Mr. Holtrop may be congratulated for his admirable study, which is a model of a well-balanced monograph. He has succeeded in making important new discoveries in a field that seemed to be already wholly explored.

GOTTFRIED HABERLER

UNIVERSITY OF VIENNA

The Book of English Law. By EDWARD JENKS. Boston and New York: Houghton Mifflin Co., 1929. Pp. xx+460.

The Development of European Law. By MUNROE SMITH. New York: Columbia University Press, 1928. Pp. xxvi+316.

These books on the law, written by the most competent scholars for the non-professional student, are important for all who are interested in making the meaning and history of institutions an element in the study of economics. Dr. Jenks' book is a general survey of "the principles as distinct from the exceptions" of English law. It is "not in the least intended to be 'useful' in the commercial sense . . . ." but "to make the lay reader, English and foreign, understand that the rules of English Law are at once the unconscious expression of the national mind and that, at the same time, they exercise a powerful influence on the mental attitude, and therefore, on the character and conduct, of the Englishman." This is the genuine institutional point of view, and it goes without saying that the greater part of legal institutions belong almost as much in the category of the economic. It can hardly be questioned that a general acquaintance with jurisprudence and legal history is an essential part of any adequate social science training, or that the neglect of this requirement is one of the worst defects in the programs of these sciences in American colleges and universities. For society is a mass of institutions as much as it is a mass of human individuals, and after language, law is the supreme institution. The present book gives much historical information in connection with the various divisions and doctrines of the law, but from the historical point of view might well be used in connection with the author's well-known *Short History of English Law.* There are no footnote references and the Bibliography fills less than three pages, but its usefulness is increased by classification and brief comment.

By way of criticism, it must be admitted that in reading the book one feels that the law is viewed more in its aspect of an implement than that of an institution in the more scientific sense. The author is after all a compatriot of Hobbes and Locke, Paley and Bentham and Spencer, and the treatment is not quite in the spirit of the ideal so well stated in the Preface.

The volume by the late Professor Munroe Smith is remarkable for the amount of subject matter presented with clearness and charm in limited compass. It bears the subtitle, "A Series of Lectures Delivered at Columbia University," but this calls for some interpretation as the Introduction and fifty-four sections average but a half-dozen small

pages and vary in length from two to seventeen. The three Books relate, respectively, to "Early Germanic Law," "Interpenetration of Roman and Germanic Laws," and "Disintegration and Reintegration (887–1500)." It claims only to cover the private law of Western Europe within the period indicated, but there is much reference to political and social organization and to legal development since the Middle Ages. The book gives an exceptionally clear picture of the medieval system as a whole. Some of the later sections deal with national units, but the emphasis throughout is on the European point of view, and on the essential unity in the development of Western Europe down to modern times, with some exception for England. The one disappointing feature of the work is its failure to give an introduction to the literature. In the appended "Literature and References for Collateral Reading" the items are chiefly old and given without the needed characterization which Dr. Jenks has provided in his book.

F. H. KNIGHT

UNIVERSITY OF CHICAGO

Trade Associations: The Legal Aspects. By BENJAMIN S. KIRSH. New York: Central Book Co., 1928. Pp. 271. $5.00.

This book, written by a former special assistant to the United States attorney in New York in the prosecution of antitrust cases, enjoys the fleeting distinction of being the most recent bound volume on the law of trade associations to be presented for consideration. The author's purpose is to provide—for students, lawyers, and trade-association executives and advisers—an analysis of the legal aspects of selected trade-association policies and practices in relation to their economic and business setting. Following an introductory summary of the field, successive chapters, arranged apparently by chance, deal with statistical activities, uniform cost-accounting, credit bureaus, patent interchange, foreign-trade promotion, uniform basing-point systems, collective purchasing, standardization, trade relations, and restriction of channels of distribution.

Trade-association law may be approached from at least three angles: the law as it is, as it is likely to be, and as it ought to be. It is doubtful whether this book makes a really significant contribution in any of these directions. Its central theme is the "growing necessity for co-operative effort in the present-day organization of industrial and

commercial enterprise." But this "growing necessity" has grown so familiar in trade-association literature that its constant repetition as an accepted formula is beginning to annoy rather than to convince. It is a delicate formula; while it must be employed with caution lest it operate to prove more than the user cares to have established, an excess of restraint will drain it of all vitality. The author seems not always to appreciate that calculating the exact rôle which co-operative activity should play in a fundamentally competitive society requires nice balancings and adjustments. High hopes which the reader may entertain after the first few pages of Mr. Kirsh's book, and which may recur intermittently throughout the reading, will for the most part prove at the close to have been ill founded. Problems are recognized and posed, but the attack is not vigorous; the analysis is neither searching nor sustained.

On technical points of law Mr. Kirsh seems to this reviewer to be on fairly solid ground. A question may be raised as to whether the Linseed case is to be interpreted (p. 63) as frowning upon penalties and forfeitures per se or only upon those designed to enforce illegal joint action; the latter interpretation is believed to be correct. The author's construction of the Maple Flooring and Cement decisions (p. 20) as placing "the burden of proof upon the complaining parties to establish that these instruments were being abused in fact, rather than that they would necessarily result in abuse," seems inaccurate; one wonders whether the statement clearly expresses the author's understanding of the law. On page 101 Mr. Kirsh takes exception (properly, in the reviewer's opinion) to the interpretation placed on the force of the Cement case with respect to credit interchange by the National Industrial Conference Board's *Trade Associations;* but to avoid confusion the reference should be to the *second* edition, only, of this work.

In connection with each of the chapter subjects an analysis is made of the points on which significant cases arising under antitrust prosecutions have turned, and with respect to many of these activities the limits of legality are tentatively plotted. The paths in this area, however, are frequently so indistinct and conclusions must be so hedged about by qualifications that it is dangerous to go much beyond the facts of specific hypothesized cases. Indeed, in his Preface, Mr. Kirsh asks the reader to note "as he embarks on the voyage of exploration of trade association law with the author, that he should not expect a description of flora and fauna in some regions in which the author can perceive solely the shadowy coastal outlines." This warning, inciden-

tally, suggests that Mr. Kirsh's tour is not unique; surely most of those for whom it is planned have already enjoyed similar journeys.

In the first half of the book almost incontinent stress is laid upon the pronouncements of the Supreme Court in the Maple Flooring and Cement cases. They are made to serve both as text and sermon, and they constitute obviously the spring from which bubbles the author's confident enthusiasm over the "dynamic" change in the evolution of "the legal conception of competition" in response to "the newer economic and business necessities." These cases "mark a distinct turning point in the judicial attitude concerning trade association activities"; they "overcame the great barrier to trade associations which the earlier *Hardwood* and *Linseed* cases had set up"; they are "basic and epochal." It is tempting to speculate on the true import of these cases. Whether in the later cases the Supreme Court was looking at sets of facts materially different from those involved in the earlier proceedings, or whether, consciously or unconsciously, the Court in all of these cases looked differently at similar sets of facts, is destined to be the subject of long and fruitless debate. The fact remains, however, that some such development in judicial attitude was reasonably to be anticipated. The law of trade restraint is not new, of course, but its application to the activities of trade associations is a phenomenon of comparatively recent date and it is not to be supposed in matters so complex that the courts will be able to stake out a complete line of policy on the facts of one or two—or even four—cases. The "spirit" of the later opinions, to be sure, is more tolerant, but even these opinions purport to distinguish the facts of the cases in hand from those of the preceding cases. After all, the majority opinion in a 6-3 determination under circumstances such as here prevailed is thin fare upon which to nourish a legal "epoch." It is true that the law in this field is gradually being molded to the needs of currently desirable business practice, but it is questionable whether the Hardwood and Linseed decisions, viewed in the proper perspective, in fact militate against this proposition.

The book is well documented, and liberal use is made of quotations and excerpts from judicial opinions. It is in some respects an able piece of work and should be of substantial service to executives and attorneys as a convenient runway from which to "take off" in coping with concrete problems growing out of trade-association practices. In candor, however, it must be said that Mr. Kirsh does little here which has not been as well or better done by others.

BEN W. LEWIS

OBERLIN COLLEGE

The Morris Plan of Industrial Banking. By PETER HERZOG. Chicago: A. W. Shaw Co., 1928. Pp. x+126.

This book, which won the first prize of the Chicago Trust Company in 1927, is an uncritical account of the so-called "Morris Plan" of lending money on indorsed notes. The author accepts the propaganda put out by the Morris Plan promoters at its face value. For example, on page 9 occurs this sentence, "'Industrial Banking' means simply the extension of credit, ordinarily in moderate amounts, *at legal rates of interest*"—italics are mine. To this, we must add the statement on page 99: "Let it be noted that there is nothing secret or tricky about the Morris Plan charges." On page 22, can be found this statement, "Undoubtedly this practice pays in some manner or they would not be doing it." For once the author is rightly suspicious. For the practice referred to is the payment of 5 per cent interest to customers who buy investment certificates. Now the Morris Plan is mainly a scheme to enable the lender to charge more than the ordinary legal or contract rates of interest in force in most states. Discounting a man's note for 6 per cent plus 2 per cent, the usual Morris Plan rate, at the beginning of the year and requiring weekly payments on principal to start immediately means charging the customer 19.2 per cent on his loan. Any lender can increase the rate indefinitely, if he cares to do so, by merely discounting the loan at 7 per cent or 8 per cent plus a fee of 3 per cent or 4 per cent without the customer being aware of the interest rate which he is actually paying. So far as can be ascertained, there is no supervision in any state that would call a halt on this mounting cost to the borrower. I do not say that this minimum charge of 19.2 per cent is too high. I merely want to point out that this is not the legal rate as most people would interpret it, and that the explanation of the ability of the Morris Plan Companies to pay 5 per cent on investment certificates lies in the charge of 19.2 per cent or more to borrowers. This 19.2 per cent rate is also swollen, be it noted, by the practice of imposing a fine of five cents for each default in the payment of $1.00 or fraction thereof. On delayed instalment payments of $10.00, this would amount to an additional charge of $0.50 on each payment. How much it adds to the 19.2 per cent rate is not known, but it must net the lender a considerable amount, as experience elsewhere in the small loan business goes to show that there are regularly a considerable number of borrowers who either will not or cannot meet their payments on time.

Other facts in the history of Morris Plan development are also accepted in an uncritical and unscientific spirit. The propaganda that

made the Morris Plan appear to be an American adaptation of the European co-operative credit organizations and of the Scotch banking system of making small loans is swallowed almost hook, line, and sinker (see chapter ii). The author does note that the early propaganda of Mr. Morris underwent a change in 1914. He says on page 29: "When the Industrial Finance Corporation was formally organized and began operations on June 1, 1914, not only were important changes made in its board of directors and financial backers, but instead of being described as a union of business and philanthropy, it was admitted to be a purely business venture." The non-philanthropic character of the scheme is borne out by the statement on page 41 regarding the Morris Plan Insurance Society, which was organized to insure borrowers. He says: "This society is strictly a proprietary company, and there is no limit to the profits which may be given its stockholders. Thus far substantial returns have been paid them." In other words, the rates are adjusted, not merely to cover losses on loans, but to enable the company to make an insurance profit out of those who through necessity are forced to borrow money at 19.2 per cent interest.

In describing the repayment of the loan on page 21, the author states: "The borrower does not pay on the loan. He becomes an investor in this certificate and applies installments thereto at the rate of $1.00 a week for 50 weeks on each Class C certificate subscribed for in this manner." He does not, however, bring out the fact that this is a subterfuge to assist in covering up the 19.2 per cent rate charged to customers. The sale of something to the borrower has always been a common device of high-rate lenders to conceal the charge.

The author says on page 35: "The extent to which the Morris Plan is recognized by the courts today may be seen in the case of the *Industrial Finance Corporation v. Community Finance Company, et al.* of 1923." He might better have said, the extent to which the Morris Plan was *not* recognized, since the opinion cited allowed the appellees to use every feature of the Morris Plan. Only the name could not be used. This likewise answers the question of the value of the copyrights, trade marks, etc., of the Morris Plan.

Since the author mentions the fact that the Russell Sage Foundation believes that 3½ per cent a month is not an unreasonable rate on small loans, it would perhaps have been fairer to have added "on loans of less than $300." The average Morris Plan loan is much larger than, approximately twice as large as, the average loan of companies operating under the Uniform Small Loan Act sponsored by the Russell Sage

Foundation. The cost of Morris Plan collection is also much less by virtue of the requirement of two indorsers. Moreover, under the uniform law, no fines can be levied on the borrower for slow payment.

The author has done well to point out that the banks do not supply the credit needed for the working-class population. The Morris Plan Companies do assist borrowers who cannot, as a rule, obtain accommodation at the banks, but in the opinion of the writer of this review, the method of charging the high rate necessitated by the nature of the business is open to question. The concealed rate offers little or no financial education to the borrower. The discount plan makes refunds for repayment difficult to compute, easy to avoid, and an ideal method of exacting usury. The computation of interest on unpaid balances, at a named interest rate, is the one successful method of restricting lenders to honest tactics and of encouraging borrowers to get out of debt quickly. The actual rate charged should be clearly shown in every transaction and a reasonable maximum fixed and enforced by law.

SWARTHMORE, PA. LOUIS N. ROBINSON

Democracy and Finance in China: A Study in the Development of Fiscal Systems and Ideals. By KINN WEI SHAW. New York: Columbia University Press, 1926. Pp. 215.

For one interested in the fiscal development of China this is an invaluable study; it is undoubtedly the most competent brief survey of the subject in the English language and it is doubtful whether its equal is to be found in any other language, even the Chinese. In his introduction Dr. Shaw discusses the fundamental principles of the five basic schools of Chinese fiscal thought: those of Lao Tzŭ, Mo Ti, the Agriculturalists, the Jurists, and Confucius, and shows why from the days of the Emperor Wu of the former Han Dynasty to comparatively recent times stagnation has generally prevailed in China as far as fiscal study is concerned. Among these are "the influence of 100 per cent Confucianism and the consequent extreme conservatism which prevailed"; lack of public interest in fiscal science as a result of the policy of "minimum interference as advocated by the school of Lao Tzŭ" and the adoption of the monopolistic policy of the Jurists; the lack of specialized thought and treatment of this science by Chinese historians and the inability of the people to participate in the determining of national fiscal policies.

The body of the work is devoted to outlining and interpreting the

fiscal development of China from 2698 B.C. to 1926 A.D. It is to be noted that in adopting this chronology the author accepts the ancient records of his country at their face value, which most modern historians, Chinese and non-Chinese, no longer are willing to do. At least one thousand years might well have been dropped. The *Tsing Tien*, or public land system, of the pre-Ch'in period; the tribute system of the Hsia; the aid system of the Yin; the share system of the Chou; the salt and iron monopolistic system of Sang Hung-yang; the land nationalization system of Wang Mang; Yang Yen's system of semi-annual land taxation; liquor and tea taxation; the rise of paper currency under the Sung, Kin and Yuan dynasties; the land and personal service taxes of the Ming and Ch'ing rulers—all are described and criticized by Dr. Shaw, as are the effects upon China's fiscal system of development of intercourse with the West from the first half of the nineteenth century to the present.

The concluding section is somewhat general and perforce theoretical in nature. Here is to be found the explanation of the author's inclusion of the term "democracy" in his title. To Democracy both knees are bent. In considering necessary reforms in the Chinese tax system various factors are analyzed: ethical, economic, sociological, regional, political, administrative, technical, and psychological. A plea for scientific accounting is included with a harmless necessary argument in favor of "enlightened public opinion." Consummations devoutly to be hoped for, if not immediately to be expected.

A well arranged and fairly adequate bibliography and index are included, also a table of Chinese chronology, and an explanation of Chinese currency terms, weights, and measures.

HARLEY FARNSWORTH MACNAIR

UNIVERSITY OF CHICAGO

Labor Conditions in Japan. By SHUICHI HARADA. New York: Columbia University Press, 1928. Pp. 293.

Mr. Harada has done a very excellent piece of work in his *Labor Conditions in Japan*. He has been thorough and scholarly, and much of the statistical material on labor conditions that he presents is not otherwise available in the English language. His book is an outstanding contribution to the economic literature on Japan and is a dependable source for ready reference.

The study is divided into two parts. The first gives the economic background of Japanese labor and is an excellent summary of Japan's industrial problems. According to the author's analysis, the nation is weak in natural resources and raw materials for industry. Her present industrial structure is not well co-ordinated. The continuance of the domestic system side by side with the factory complicates the organization of industry. Industry is inefficient, capital is lacking for large-scale production, and progress is retarded by the use of out-of-date machinery. A wide divergence between the products of the industrial system borrowed from the West and the products for home consumption leaves modern industry dependent upon foreign markets which are both unreliable and uncertain. And raw silk, the major product of industrial Japan and the corner stone of the foreign trade, is seriously threatened in world-markets by the future of rayon. The nation is still essentially agricultural, but the prospect of expansion along this line is greatly limited by the already intensive nature of cultivation and the high yield of major crops. The food problem is becoming serious and social unrest has disturbed the farmers. The nation is faced with a severe population problem that neither migration nor birth control nor agriculture can be expected to lessen in the immediate future. It is therefore to industrialization, as a last hope, that Japan has turned for relief from the pressure of her increasing numbers.

The second part of the study presents the conditions of labor under the industrial system, the history and character of the Japanese labor movement, and the nation's accomplishments in labor legislation. It is more a presentation of fact than an analysis of problems, and the major contribution of this section is the making available in English of some data that have so far been published only in Japanese. The first three chapters give the character and distribution of the laboring population, the size of industrial establishments, the extent of child labor and of female labor in industry, the conditions of labor in the factory dormitories, labor turnover and unemployment, wages and their failure to meet the cost of living, hours of labor, and the international aspect of the eight-hour day. The next two chapters take up the labor movement, its size, and the character and frequency of labor disputes, the history of foreign influences on the movement, the influence of the intellectual in the movement, the disruption into right, left, and centrist wings, and the recent development of proletarian political parties. The subsequent chapters de-

scribe the employers' attitudes toward labor and the significance of the traditional paternalism of feudal Japan in the labor relations of the present-day industry, the progress of the nation in labor legislation, the government's attitude toward organized labor and the severe restrictions that have been imposed against unionism by the government.

In a final chapter the author summarizes his conclusions and makes some suggestions that are more ideal than practical. Starting with the premise that the major problem of industrial relations in Japan is less one of distribution of profits and more one of productivity, he points to the need for a thorough reorganization of industry with the emphasis on efficiency, to the lack of co-operation in industry, and to the need for educating labor in the principles of modern industrial organization. His suggestions are for more legislation and research—legislation compelling corporations in wage disputes to present, upon request from conciliatory labor delegations, a certified financial statement of the business; and research by the creation of an industrial research bureau, supported by capital, labor, and government, to study the economics of industry, the productivity of labor, health, sanitation, industrial welfare, and labor legislation.

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